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THIS ENGLISH

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BY

SIR RICHARD PAGET, BART.

AUTHOR OF *HUMAN SPEECH*, ETC.

WITH A PREFACE BY

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EXETER COLLEGE, OXFORD

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". . . our speech, in its mere cries and calls, hath less natural beauty and true significance than the bodily gestures which convey our desires . . ."

Robert Bridges, *The Testament of Beauty*, 11, 1174–6.

" Must a name mean something ? " Alice asked, doubtfully.

" Of course it must," Humpty-Dumpty said with a short laugh. " *My* name means the shape I am, and a good handsome shape it is, too. With a name like yours, you might be any shape, almost."

Alice Through the Looking Glass.

" and the moral of that is, take care of the sense, and the sounds will take care of themselves."

Alice in Wonderland.

" The potato says these things by doing them, which is the best of languages."

Samuel Butler, *Erewhon*.

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PREFACE

By R. R. MARETT, D.Sc., F.B.A., Rector of Exeter College, Oxford

"And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof." When I was little, no part of the story of Adam and Eve appealed to me more than this passage; and, setting up the contents of my Noah's Ark in a circle about me, I would do Adam's work for him over again on entirely novel lines with all the passion and joy of an inventor. Now, it may be pure illusion on my part, but somehow I feel that, if I could to-day recover that early mood of blissful verbal creation, I would be well on my way towards a plausible theory of the origin of language. I say "plausible" because a genetic, as distinguished from a purely historical, philology can never hope to verify its guesses, which deal with the ultimate beginnings of articulate speech. Yet such beginnings there surely were, and these not divine but wholly human beginnings, as the Book of Genesis is ready to allow.

As touching, then, my own childish experiments in nomenclature, it must be confessed that I started with

the unfair advantage of knowing that my animals ought to have names of some kind. To provide them with these afforded me satisfaction, not merely because it exercised my talent for making noises in considerable variety—thus altogether outrivalling my nursery companions, the dog and the cat and even the canary—but also and more especially because it flattered my sense of power to make the objects of my play-world answer to my beck and call. At the same time, however conscious I might be that it rested with me to impose on them what names I chose, it was no less clear that the names must be right—that they must be, as it were, part and parcel of the very nature of the things named. Inconsistent or not, these two feelings, I believe, were present together in my youthful mind.

Thus, to begin with, a ready means of distinguishing the more familiar animals was furnished by their various cries ; though it was often necessary to sacrifice exact reproduction to greater ease of utterance. But more frequently there was no known noise to serve as a pattern, and yet there spontaneously suggested themselves sounds that were directly and intrinsically expressive of the thing, as at least it seemed to the fancy of the moment. Whereas, then, the reason for styling a dog a bow-wow is plain enough on the face of it, it is by no means so evident how soundless attributes translated into vocal terms can appear just as self-expressive in their own way. Indeed, some might be inclined to argue that at this point objective reference as implicit in the sound inevitably ceases—that the

operation of naming becomes entirely subjective in value, being either quite arbitrary, or at most an interjectional sign of the emotion which the thing provokes.

Such a view, however, ignores the fact, well known to every anthropologist, that your primitive man is in his mental type a pronounced extravert. His universe is composed of stubborn and unobliging facts which are not to be conquered unless he first learns to obey them. Their behaviour so largely governs his that he must at all costs project himself into their private scheme of action. In short, he gets to know things mostly by pretending to be them. Thus, on *a priori* grounds there is much to be said for Sir Richard Paget's attempt to explain language, or at any rate a fundamental element in it, as consisting in the effort to act the part of the thing with the mouth as chief actor—a position no doubt previously held by bodily, instead of oral, gesture. Such a sympraxy is a sure way of attaining to an effective sympathy; and, because the body has so much else to do, while the relatively idle mouth is available for special duty, man finally comes to thrust upon his organs of speech the whole burden of a representational pantomime for which they are but partially fitted. However inadequate our limited apparatus of sound-producing actions may be to bring us into touch by means of a suggested likeness with the myriad activities of the world of external objects, the miracle has happened; and it may well be that deep in the unconscious mind of the race there survives a preference for the natural oral symbol as against the conventional,

seeing that meaning can never afford to dispense with the aid of basic sense.

It only remains for me to tell a little story. In the summer of 1929 Sir Richard Paget lectured to our Anthropological Society at Oxford; and, after he had made out a strong case for his theory of voice-gesture as a key to the significance of words of the primary order, I was moved to challenge him to a practical test. Let him be faced with a vocabulary of root-like forms standing for concretes that shall be taken from some language totally unknown to him; and let us see whether he could divine the correct interpretation in palpable excess of the chances, which I put at about one in the hundred. Thereupon the Professor of Chinese supplied a string of monosyllables belonging to the most ancient stratum of the literary language, the only complication in the case, whether drawback or advantage I am not sure, being that, Chinese-fashion, the same vocable, with or without slight change of accent, might be used to express a number of distinctive meanings. Well, the end of my tale—I might almost say the moral—is that Sir Richard Paget registered over 50 *per cent* of hits that were more or less on the target, some of them indubitable bulls. Hence, even if it be certain that the stream of language is fed from many sources, it looks as if the fountain-head were to be discovered somewhere along this line of barely explored country.

THIS ENGLISH

INTRODUCTION

Speech is so important an art to mankind as a whole, and language so material to the welfare—both intellectual and material—of the community which uses it, that the nature of speech in general, and of the various languages in particular, ought to be better understood. Speech and language should no longer be taken for granted, or left to their own devices in this struggling and rapidly changing world. Picture writing has died out. Except in the form of the silent cinema, all our accumulated knowledge is stored and communicated in the form of written or "recorded" or spoken words.

What are these words? What do they really represent, and how do they come to bear meaning? Why do they differ amongst different nations, and change, in process of time, even in the same nation?

Speech must have been evolved—like the human race itself—by a process of gradual building up from rudimentary to higher forms—capable of greater activity and of adaptation to wider and more complex conditions.

Philologists, linguists, phoneticians and grammarians have made elaborate studies of the existing languages,

and of the changes of verbal and structural form and pronunciation by which they have been built up from earlier recorded languages; they have (as yet) given but little study to the underlying principles which are common to all languages.

But, as these pages will show, there is evidence of a common principle extending (probably) through all languages, and especially evident in our own.

It is true that certain principles of word formation have actually been noticed by philologists, as, for example, that in a great variety of languages, words meaning *little* have the vowel I or EE, and words meaning *large* have A, AW, O, or OO—e.g. *huge*, *wee*; French, *grand*, *petit*; German, *gros*, *klein*; Finnish, *suuri*, *pieni*; Hungarian, *nagy*, *kis* (*kish*); Greek, *megálos*, *mikrós*; Chinese (Mandarin), *d'âi*, *siau*.

What has hitherto been but little noticed is that there are similar principles at work in nearly all our short English words—principles which urgently need investigation.

Thus, in English (and other languages too) words that begin or end in -SP- commonly mean something that comes to a fine point or edge or jet—as in *spear*, *spire*, *spout*, *spit*, *spue*, or in *asp*, *wasp*, *wisp*. Similarly practically all the English words that begin with STR- mean something that extends longitudinally—as in *stream*, *string*, *strap*, *stretch*, *strain*, *stroke*, *street*, *strand*, *strake* (of timber) and so on. There *must* be reasons for these general rules; should we not search for them?

At present it seems to be assumed that, in the case

of the various national languages, there are no fundamental principles to be considered; that each language has grown, and must be left to grow and change, as the instinct of the community dictates; also, that every speaker or writer is entitled to make what innovations he likes, provided he can command a sufficient following.

In the present book, the attempt will be made to show the real nature of human speech, and to illustrate it with reference to present-day English.

In the first place it may be well to point out that, in comparison with the great antiquity of human speech, English is not much more "modern" than Sumerian or archaic Chinese!

Man, as we shall see, *must* have been a talking animal ever since he was sufficiently developed in mind to want to express ideas, as distinct from mere emotions such as love, hate, fear, pain, or pleasure.

Anthropological research now indicates that this condition of mind in primitive man may well have been reached many hundred thousand years ago.

In comparison with, say 500,000 years, the "antiquity" of Sumerian or archaic Chinese is a negligible quantity. All the languages of which we have record are in fact modern, and we are therefore quite justified in taking English as the subject of our investigation.

For, if the principles which we believe to have discovered are really valid, they should be as evident in modern English as in the only slightly less modern Sumerian or Chinese.

It will be seen in what follows that there *are* definite principles underlying the development of human speech; that it can often be said with certainty that this or that word is a good or bad speech word for its purpose; and that we can be sure *how* certain words *ought* to be pronounced. If so, the way is now open to us to rationalize our own language, and to guide it into the way of truth and perfection for its purpose.

We shall find that our present standard "Southern English", for example, by no means represents the best language that these Islands have produced, and that there is much to be learned and gained by using some of the forms which are still current in Wessex, Lancashire, Scotland, and East London.

English, as we shall see, is probably the best language that man has yet evolved; but it is very far from being adequate as a code for expressing thought. There is no valid reason why—when we have once learned to understand the principles by which human speech has evolved—we should not set ourselves to the task of improving our own language so as to make it as far as possible perfect. We should then gain for the English-speaking world all those intellectual and material advantages which a really good language would confer on the communities which used it. Thinking would become easier—explanation would be swifter, surer, and neater—misunderstandings would be fewer; the language would be more beautiful; we should have made a definite advance in true civilization.

At present all is left to chance; the language acquires

new words haphazard—its changing pronunciations and idioms are a matter of fashion. Yet we take a greater interest in the changing fashions of our clothes than of our speech! It would be far more rational to rationalize our language than our industries. Nothing but good would come from the improvement of our language, for it would represent (as we have said) a definite advance, in clearness of thought and expression, and in avoidance of misunderstanding. The rationalization of industry—unless guided by other principles than those of the pursuit of mere cheapness—may make Robots of us all, and condemn us to a universal prison-life, like that of the social insects, the ants and termites, bees and wasps!

In this book we shall not be concerned with questions of grammatical structure and the like; a word may therefore be said about some of the subjects which will be omitted in what follows.

Grammar is not a necessity of human speech. It is quite possible to imagine a highly efficient language that had *no* grammar: a language in which each word represented an idea, and could be used in any connection, and as what we should call any "part of speech"—for example, as a substantive, an adjective, a verb, or an adverb. The word would fundamentally represent the *idea*, and would be used, unchanged, whenever that idea was required to be symbolized. The order of the words would follow the logical order in which the ideas themselves developed in our minds.

Chinese is actually very much in that condition;

there are, practically speaking, no parts of speech in the Chinese language, and the main difficulty in learning it (in spite of the simplicity of its structure) is that each word is in effect a monosyllable—e.g. *chan*, *kuan*, *huo*, *mi*, *p'ien*, *chung*, *shê*, etc—and that, in Chinese (Mandarin dialect) there are only 420 such syllables which have to do duty for about 4,200 different words in common use; i.e. an average of ten different words for each syllable.[1]

It is as though, in English the syllable "box" did not merely mean (1) to fight with the fists, (2) a receptacle, (3) a tree (Latin *Buxus*), but also meant at least seven other entirely different things or ideas, and as if almost every English syllable also meant about ten different things or ideas.

Originally, Chinese had a great many more separate sounds than it now has; but quite a large proportion of them have been lost through carelessness in articulation. Thus, according to Karlgren,[1] nine separate "voiced" sounds of the type of G, D, B, Z and a voiced guttural rather like the Northumbrian R have all lost their "voice" and become like K, T, P, and S, and the unvoiced guttural as in the Scots LO*ch*. It follows that the words which used to begin with one of these voiced sounds are *pronounced the same* as the corresponding words which originally had K, T, P, S, etc. There were also a number of words which *ended* in -P, -T, -K, -M, -N, and -NG, which (in the Mandarin Chinese) have now lost

[1] See B. Karlgren, *Sound and Symbol in Chinese*, 1923 (Oxford University Press).

their terminal consonants altogether—except the terminal -M which has become -N, and the -N which remains as -N.

Here again a great confusion of sounds has resulted. It is as if, in English, *rap*, *rat*, *rack*, and *rang*, were all pronounced RÄ, and *ram* and *ran* were both pronounced RAN.

It is well to emphasize the sad plight of the Chinese speech sounds which has resulted from continued carelessness in pronunciation, so that our own language may avoid the same fate.

English resembles Chinese in these respects: (1) that it is much less grammar-ridden than most other languages. (2) that it is almost completely free from verbal inflection—i.e., the form of its words does not change according to the context. (3) that its word-order is highly logical. (4) that the same word can often be used, without change, as a substantive, adverb, verb or adjective, and (5) that it depends on the use of a large number of short words.

But English, unlike Chinese, is very rich in separate sounds, and has a great collection of distinctive short words, which make our language clear and concise. There might, it is true, be many more short words in use, for there are actually some thousands of possible words of one syllable which could be composed out of the sounds we use, but which are not yet employed as words.

For example, if we take all the words of three or four letters that could be made (with English sounds)

to rhyme with BAB, we find that the following are at present employed: *cab scab, dab, shab* (play mean tricks), *blab, slab, nab, knab* (bite), *crab, drab, stab, abb* (yarn of weaver's warp). Three other words, *quab* (fish), *squab* (couch or sofa, unfeathered, fat), and *swab* rhyme with FOB.

On the other hand, *fab, frab, flab, glab, hab, klab, pab, prab, plab, rab, sab, strab, trab, thrab, vab, wab, yab,* and *zab,* are all unemployed. The unemployed words of this series are a substantial majority, yet who can say that, as sounds, they are less worthy than their more fortunate brothers on the active list?

In other series, the employed words may be found to be in a majority, but on the whole the unemployed words must largely out-number the employed. When new words are wanted, it would be better if we turned to this great army of the "unemployed", rather than to the outlandish and sometimes outrageous collations of Greek or Latin, or both, with which we are apt to burden our language. As we shall see later, there *are* definite principles (not yet generally recognized) by which we could select really suitable "words" from the unemployed list, to represent ideas for which there is, at present, no distinctive English word.

Absence of verbal inflection in English is a great virtue. Thus, our word "good" remains unchanged whether it is applied to man, or woman, or inanimate object, and whether to one or many. In other languages —e.g., French or German—the adjective changes its form according to the gender or number of that to which

it applies. A logical word order is also a valuable asset; it is not necessary to hold back our thoughts so as to sort them in an artificial order, so as, for instance, to get the verb at the end of the sentence. In English, as in Chinese, the words follow the thoughts.

Freedom to use a word as any "part of speech" adds greatly to the ease and flexibility of the language. In English, as in Chinese, we can say "black" (i.e., a person who is black), or to "black" (i.e., to make something black), or this is "black" (where black stands for a quality). We might do well to develop this characteristic of English speech much more than at present.

Having made this digression, let us return to the subject of our investigation.

Chapter I

THE NATURE OF HUMAN SPEECH

Speech is obviously natural to man; for all races—even the most primitive—are found to use it as a means of communicating with one another, though it is always accompanied, more or less, by bodily gesture. Speech is also obviously a quite unconscious effect, for nobody—except by a very definite effort of analysis—can become aware of what his lungs and vocal cords and tongue and lips are doing when he speaks. Still less is anyone instinctively aware of how and why the sounds that he makes in speaking have come to bear meaning, any more than we know *why* we shake our heads to mean no, or nod them to mean yes.

The obvious facts are, broadly speaking, as follows: All speech is the audible result of blowing air from our lungs through or into various cavities formed in our throat, mouth, and nose—the nasal cavity being the comparatively large hollow immediately above the roof of our mouth; this cavity communicates with our throat by a passage at its inner and lower end, which is opened and closed by a flap valve known as the soft palate; at its forward end the nasal cavity ends in our nostrils. The size and effective number of these different vocal cavities is varied by muscular movements which

we make principally with our jaws, lips, tongue, and soft palate.

The air supply from our lungs may be blown into or through the vocal cavities, either as a more or less turbulent air stream, or it can be first set into pulsation on its own account, by passing it between our vocal cords when these are pressed together. The vocal cords then behave almost exactly like a trumpeter's lips while he is blowing his own trumpet, and produce an audible note which reverberates inside the vocal cavities (constituting the body of the instrument) so as to make them "speak".

In both these cases (that of the trumpeter and that of the speaker or singer), the air stream is, as it were, chopped up into a succession of puffs which produce (when they reach our ears) the sensation of a musical sound. This action—which, in the voice of man is known as Phonation—is also very similar to that by which the note of an air-blown motor horn is produced—only the air-chopping process is then done by the action of a vibrating strip of thin metal (known as a "reed") instead of by the two contacting lips which constitute the human "vocal cords". Phonation produces what we call voiced speech; on the other hand, perflation, i.e., the passage of a more or less turbulent air stream (not already divided up into rhythmical puffs) through or into our vocal cavities, produces what we call whispered or unvoiced speech. In the case of perflation the vocal cords are slightly separated so that they do not vibrate (or vibrate very little) as the air

from our lungs passes between them, and the air then enters our throat and mouth as a more or less turbulent stream instead of as a series of rhythmical puffs. All that we then hear are the comparatively feeble vibrations which are set up in the air inside our vocal cavities (throat, mouth, and nose) by the air stream which blows through or into them. It is for this reason that whispered speech has much less energy and is so much less audible than voiced speech.

But phonation is not merely a device for chopping up the air stream which passes through our vocal cavities so as to stir up the air which they enclose. The music of the vocal cords is a language to itself—a common heritage of man *and* of the higher mammals, by which they all (in varying degree) express their emotional states—whether of pleasure, pain, anger, fear, love, challenge, etc., by the medium of sound. Hence the whinings, howlings, snarlings, and croonings, the cries of rivalry or the calls to love, which are common throughout the animal world. These, as we instinctively recognize, are not Speech—yet they bear a very definite meaning which probably all animals can understand. A cat does not have to be taught that the growl or snarl of a dog is an unfriendly signal!

The variations of pitch (and, to some extent of character also) in phonation are due to varying "attitudes" of the vocal cords and the surrounding parts which, in man, are situated in the throat within, or immediately above "Adam's apple", just as the varying pitch and purity of the note produced by a trumpeter are due to

the varying shape and tightness of his lips in blowing the instrument. Dr. Oscar Russell, of the Ohio State University (U.S.A.) has demonstrated[1] that the attitudes of the organs of phonation are sympathetically connected with the expression of the human face, and that as our facial expression changes—e.g., from a smile to a scowl—the visible "expression" of our organs of phonation also changes. Phonation gives, therefore, an audible signal of the changing expression of our face, and of the emotional change which is thus signified. It has long been known that, in singing, a pleasant expression of the face tends to induce a pleasant voice. It can hardly be doubted that the same association of face and throat occurs more or less in animals, and that, for example, snarls and growls are directly related to the threatening expression of the face which accompanies them.

We now come to the crucial question of Articulation—or those movements of tongue, lips, etc., by which phonation is converted into voiced speech. It is not necessary here to describe the movements of articulation in detail—we all know that, when we speak, we are moving our tongue and lips in a variety of ways. Perhaps we do not all realize that it is these movements alone that give meaning to our speech. This point can easily be tested in a very simple way.

Let the reader hold his breath—so that no air moves into or out of his vocal cavities—and then "talk"

[1] At the International Congress of Phonetic Sciences, Amsterdam, July, 1932.

without making any sound. He will be perfectly aware of what he is saying, and a lip-reading deaf-mute, or a hearing person who has learned lip-reading, would be able to understand what he was saying—simply by observing his movements of articulation ; yet there has been no sound of any kind produced. Sound, therefore, has nothing to do with the meaning of speech, though it has a great deal to do with its emotional quality.

Lip-reading is a remarkable phenomenon, and not less so from the fact that only a small proportion of the tongue movements can be actually seen, and that certain throat movements of importance cannot be seen at all. The lip reader has, therefore, to infer many of the gestures, and guess at their meaning from those which are visible. Yet so alert is the human mind to observe those things that concern it, that deaf mutes, as well as normal people who have lost their hearing, can do this so as to understand ordinary conversation, and have even been known to lip-read on the screen the remarks made to one another by cinema actors in a *silent* film—remarks which in no case were intended for publication !

We have seen that voiced speech (induced by " phonation "), or whispered speech (induced by turbulent air flow or " perflation ") or silent speech (without air flow) all *mean* the same thing. But voiced speech has this great advantage, that it imports the emotional language ; it also can be read in the dark, or round the corner, for we then lip-read by ear !

The combination of phonation and articulation gives us, in fact, two separate sources of information. The

tone of voice—its rising or falling, its sweetness or harshness—indicates the emotional background—i.e., the speaker's state of mind—while the movements of articulation indicate the ideas which the speaker strives to express.

Phonation is the mother of song, and man has made great strides in this art; but it is in the use of articulation for the expression of ideas that man has entirely outstripped his fellow mammals. Yet, in extremities of emotion—whether of pleasure, love, fear, passion or pain—man returns to his original state, and becomes once more, inarticulate.

The Production of Speech Sounds

We have said that speech sounds (voiced or unvoiced) are the results of passing air (in rhythmical pulsation or in a continuous stream) into the vocal cavities, but we have not, so far, considered how the cavities themselves operate to convert the air flow into speech sounds. A complete description of the process would be beyond the scope of this book. Those who are interested will find it described in detail in the present author's work, *Human Speech* [1]—together with an account of the simple experiments by which it was found possible to produce the various speech sounds (vowels and consonants) by means of models. For our present purposes it will be sufficient to have merely a general idea of the principles involved.

[1] *Human Speech*, by Sir Richard Paget. Kegan Paul, 1930, 25*s*.

Resonance

Every cavity—such as the cavity of the human mouth or throat or nose—has its own natural resonance ; that is, a natural rate at which the air inside that cavity vibrates (if suitably disturbed) so as to give rise to an audible musical note. The in-and-out vibrations of the air, in a cavity which has an opening to air or to an adjoining cavity, may be likened to the vibrations from side to side of a stretched string—such as that of a harp or a violin. The rate (i.e., the number of times per second) at which the string vibrates depends—other things being equal—on the length of the string. The shorter the length of the vibrating part of the string, the higher will be the musical pitch of the note which it produces. In the same way, the rate of vibration of the enclosed air in a cavity—and consequently the musical pitch of the note produced by the cavity—depends (other things being equal) on the size of the cavity.

The smaller the cavity, the more quickly will the air vibrate in and out of it, and the higher will be the pitch of the musical note which it produces—provided always that we only vary the volume of the cavity but keep the size of its open mouth, through which the air surges in and out, constant.

But the pitch of the note produced by air vibrations in a cavity, such as we are considering, depends also on the size of the open mouth. If we take a cavity giving a particular musical pitch—say of 500 vibrations per second—and *diminish* the size of the open

mouth, we shall find that the number of vibrations per second becomes reduced and the musical pitch produced becomes *lower* in the musical scale.

Similarly, if we enlarge the open mouth, the number of vibrations per second will increase, and the musical pitch will rise. The larger the mouth, the higher the pitch—whether the mouth of the cavity leads to the open air or to another adjoining cavity.

There are thus two separate ways of "tuning" a cavity—by varying its volume, or by varying the size of its mouth; the larger the volume the *lower* the pitch, the larger the mouth the *higher* the pitch. We can think of the particles of air inside a resonating cavity as being like the audience in a cinema hall who surge in and out through the entrance at given intervals, only the cinema audience, once in, stay in for an hour or two and then surge out; the air molecules on the other hand (or rather a proportion of them) surge in and out continuously like the to and fro movement of a pendulum.

But the analogy (though not exact) may be useful for explaining the *rate* at which the surging process naturally takes place. If the cinema hall doors were made twice as large, the audience could surge in or out in half the time.

Similarly, if the doors were kept at the same size but the hall were made twice as large, the process of surging in and out would take twice as long—provided, of course, there was always a sufficient audience available to fill the hall.

The best way to appreciate the principles of the resonance of a cavity is to try for oneself the following very simple experiments :

(1) Take an empty bottle—a small ginger-beer bottle will do well—and blow softly across the mouth of the bottle. You will hear a half-whistled musical note which is characteristic of an empty bottle of that particular size, and with that particular size of mouth and neck. Now get an assistant to pour water slowly into the bottle from a fine-lipped jug, while you continue to blow at intervals across the mouth of the bottle.

As the air space in the bottle gets smaller, owing to the addition of the water which now takes the place of part of the air, and thus reduces the effective volume of the bottle, you will hear the musical note of the air in the bottle rising higher and higher in pitch. It is evident that the smaller the cavity, the higher is the musical pitch of the resonant note which the air within it produces. In fact the smaller the air space, the quicker the air within it surges in and out of the mouth of the cavity.

(2) Now take an ordinary tumbler, preferably one of thin glass or beatl, turn it on its side, and hold it round the middle so that its open mouth points towards your free hand. Let your assistant tap the bottom of the tumbler sharply (with the tip of his second finger for choice) and you will hear a musical note due to the resonance of the air in the tumbler. The material of the tumbler takes no part, for it is prevented from vibrating by being tightly held round its middle—

what you hear is the air vibrations which are set up by the air within the tumbler surging in and out of its open mouth.

Now with the palm of your free hand, begin to reduce the size of the mouth of the tumbler, by sliding the palm across it. As your assistant taps the bottom of the tumbler, so as to jog up the air which it encloses and set it vibrating, you will this time hear the musical note going progressively down, instead of up, and by adjusting the amount of the closure, you will be able to lower the original pitch of the resonance of the tumbler by about an octave. Here then we have another method of tuning—namely, by varying the size of the mouth of the resonating cavity—and we find that the smaller the mouth, the lower becomes the musical pitch of the resonant note.

It is on these two principles that the natural resonance of the vocal cavities—from which all speech sounds result—is produced.

The cavities of our throat and mouth may in fact be considered as a single tube, with a flexible thickened wedge—the tongue—anchored by its head to the floor of the tube somewhere about the middle of its length, so that the thin end of the wedge points upwards.

This wedge-like obstruction is highly flexible and is capable of bending forward or back or of flattening out or projecting upward. Thus the tongue can entirely block the tube in various positions along its length, or it can act as a partial obstruction, i.e. without entirely blocking the air passage, so as to produce what—in a

busy street—we should call a "bottle-neck", a place where the fairway becomes suddenly narrower. These bottle-necks can be produced right forward in the mouth, i.e. close behind the front teeth, or in the middle of the mouth, near the hard palate, or far back in the mouth near the soft palate or the back of the throat. When the tongue is so placed as to produce a bottle neck in any position the human vocal cavities behave, in fact, like two or more resonant cavities connected together, the tongue being in effect a movable party wall, with a doorway through it, between the front and back cavities of the mouth as a whole; when air—flowing or pulsating—passes through or into these cavities, a complicated musical effect is produced, which we call a vowel sound.

In the production of vowel sounds, the doorway or bottle neck—produced at the point where the tongue is humped so as to approach most nearly to the roof of the mouth or the back of the throat—is sufficiently large to allow the air to vibrate freely in and out of the resonating cavities.

But in the case of many of the consonant sounds the action is somewhat different; the tongue may approach so nearly to the palate or the back of the throat that the air has to force its way through a relatively narrow opening. In that case a local turbulence is set up which produces vibrations of much higher frequency of vibration.

The frequencies of vibration on which the vowel sounds primarily depend are of the order of 300 to 2,500

per second, corresponding to the range of a soprano *voice*, plus one octave more above it. The resonances heard in the production of some of the consonants such as F, TH, and S are of the order of 3,200, 5,000, and 6,000 per second respectively, though lower resonances are also present.

In the case of S and F the lips play an essential part, namely, by forming a small cavity in front of the teeth, in the case of S (and Z) and by forming a partial closure against the edges of the upper teeth in the case of F (and V).

The lips also take part in the formation of certain vowels—AW, O, and OO—namely by reducing the size of the opening-to-air of the front resonator of the mouth, viz. the cavity between the humping of the tongue and the mouth opening.

The movements of articulation—i.e., the various postures and gestures of our lips, tongue, throat, etc. —are constantly varying the size and effective number of the cavities to which the air from our lungs has access; in this way, the resulting sounds are being continually modified.

That this is the true explanation of the production of speech sounds was shown in the experiments with models, to which reference has already been made. For it was found that if the artificial cavities were "tuned", by adjusting their volume and the size of their openings—so that they gave the same resonant notes as those of the human vocal cavities when "set" to produce a given speech sound—then the model

produced a similar speech sound when air from a foot bellows was blown through it. It is clear, therefore, that the same volumes and openings of our vocal cavities always produce the same speech sounds; also, that it is only by the variations of these cavities—by the complete or partial shutting off of this or that cavity—and by the shifting of the position of the tongue (which forms, as we have said, the party wall with a doorway between the front cavity of the mouth and the back cavity of the throat) that the various speech sounds are actually formed. By listening to the sounds, we can (though quite unconsciously) identify the posture or gesture of the mouth, lips, tongue, etc., which uttered them.

Phonation v. Articulation

It must be understood that the tuning of the resonances of our vocal cavities—like the tuning of the bottle or the tumbler in our first experiments—has nothing to do with the notes which we produce by phonation (i.e., by the humming action of our vocal cords). Whatever note we hum will remain the same note even after it has passed through our vocal cavities. But its vocal quality, though not its musical pitch, will be changed by the resonance of the cavities it has passed through, just as we can get the same musical note—of the same pitch but of very different "vocal quality"—from a flute or a clarinet or a cornet, though in these cases the quality of the sound is due not merely to the differences in shape and material of the vocal cavities of the

instruments but also to the different methods by which the original "hum" is produced. In the case of the human voice the note given by the vibrations of the vocal cords will therefore no longer be a mere hum, it will be a voiced speech sound, but intoned on the note which we hummed with our vocal cords. So if we keep the vocal cord note constant, and then articulate, we get intoned speech, as in a church service; in ordinary speech the vocal cord note wavers up and down; in song, the variations of the notes proceed by definite steps—i.e., from one note to another of the musical scale in which we sing.

To those who are concerned with wireless, and are familiar with the action of tuned circuits, it may be interesting to note that the vibrations of air in a tuned cavity, such as we have described, behave very similarly to the electric oscillations in a tuned circuit. It has thus been found possible to produce the various vowel sounds of human speech by passing a pulsating electric current through two circuits, each tuned to one of the two musical frequencies given by the front and back cavities of the human mouth and throat when set to articulate the vowel sounds in question. When the resultant current—as modified by the resonances of the two tuned circuits through which it has passed—was led to a loud speaker, the actual vowel sounds were thus artificially produced.[1]

We have seen, therefore, that though we commonly

[1] *Human Speech*, pp. 73–6. See also P. Kucharski, *L'Année Psychologique*. Paris. Félix Alcan. 1933.

recognize human speech by its sounds, the sounds are clearly not the fundamental effects which carry the meaning of speech. We can all (if we try) speak without making any sound at all, and those who have learnt to " lip-read " can understand silent speech by watching the speaker's mouth ; it is evident therefore that the meaning of speech is carried by the gestures of our tongues and lips, etc., and that the sounds are only consequences—convenient consequences no doubt—of the gestures.

Chapter II

THE MEANING OF SPEECH AND GESTURE

How then did the mouth gestures of speech come to have a meaning and to be the symbols of the thoughts we strive to express ?

As to this question we shall learn little or nothing by studying the *sounds* of speech—for how can a sound symbolize an action or a shape or object or quality (except in the very rare cases where the idea to be expressed has a " noise of its own " by which it can be labelled) ? We must search further back, and examine the movements of the vocal organs and cavities by which the sounds are produced ; in other words, we must study the gestures of speech.

It was the fate of the present author that about the year 1924—after two or three years experimenting with speech-sounding models—he was driven to the conclusion that human speech was " essentially a branch of human gesture, which the ear has learnt to identify—without the aid of sight—by means of its secondary effects in modifying the resonances produced by the passage of air by and through the gesticulating members of the vocal cavity." [1]

[1] *Proc. R.S. A.*, vol. 105, 1924, p. 173.

The story of the development of the gesture theory—partly through study of animal gestures, and partly through experiments in the making of synthetic words, by making appropriate mouth gestures to represent the idea to be conveyed—has already been told.[1] But there is a further line of research to which reference may be made here—namely, the study of *other* gestural means by which mankind can and does communicate, in the absence of speech.

Mention has already been made of deaf mutes and of their ability (when trained) to understand speech by the process of "lip-reading". But, without any training at all, deaf mutes in every country are found to develop among themselves a natural "language" dependent on pantomimic gesture—the so-called "Sign Language", about which something may be said here.

The deaf mute sign language is of great interest in connection with the study of human speech, for it represents man's natural way of expressing his ideas if he is debarred (by deafness) from appreciating speech by ear. It is also remarkable in being a universal language—for it is found that a deaf mute from one country has no difficulty in understanding and being understood by deaf mutes of another country. It is true that in a given community of deaf mutes, special signs are developed which only the members of that community would know—but in signing to strangers, they would use only natural signs which all deaf mutes instinctively understand.

[1] *Human Speech*, chap. vii.

We have then the interesting fact that those who *can* hear instinctively communicate with one another by gestures of articulation (which produce speech sounds) and that those who are born deaf—and who therefore have no use for speech sounds and do not naturally learn to produce them—instinctively communicate by bodily gesture. In either case the basis is gestural; but in the one case the gestures are made by the mouth, in the other by the hands, face, and body as a whole. Nor is the use of body gesture—as an alternative to gestures of articulation—limited to the deaf. It is well known that the various Red Indian tribes, who used to meet on the plains of North America in their pursuit of the buffalo, but who spoke entirely different languages, used to communicate by means of a silent gesture language.

This sign language has now almost entirely died out, since the present representatives of these tribes all speak English, but an account of it, with illustrations—written by William Tomkins [1]—was published in 1929 as an American Indian Souvenir Edition for the Boy Scout World Jamboree held in England, in that year. It is recorded that this sign language could be understood instinctively by deaf mutes, and that by its use, conversation could be carried on about three times as fast as by the use of words.

It has been the present writer's good fortune to have made the acquaintance of the Reverend Albert Smith,

[1] *Universal Indian Sign Language.* Published by William Tomkins, San Diego, California; sold by Boy Scouts' Association, 25 Buckingham Palace Road, London, S.W., price 4*s*.

Chaplain to the Royal Association in Aid of the Deaf and Dumb, of 27, Old Oak Road, W. 3, who is himself an accomplished executant not only of the deaf and dumb alphabet, but also of the natural sign language of deaf mutes. By his kindness it has been possible to make a systematic comparison of some of the signs used naturally by uneducated deaf mutes with those that were current among the Red Indian tribes of North America to express the same idea—before English became the common medium of communication.

As to the Red Indian signs—Tomkins' book contains verbal descriptions of about 750 signs, with nearly 400 drawings, also illustrated examples of sentence formation and about 300 illustrations of Red Indian "pictographs and ideographs" which formed their general method of communicating in writing. Tomkins also gives (at p. 86) interesting comparative examples of the Red Indian gestures and the pictographic symbols for the same ideas.

About 100 of the Red Indian signs of more general interest were selected for comparison with their deaf mute equivalents. It was evident that the two systems were identical in principle, and that the differences between the deaf mute and Red Indian signs for the same idea were due to differences in outlook and mentality rather than to any difference of method.

The deaf mute sign language is more emotional, the Red Indian is more austere; thus, deaf mutes make great use of facial expression in conjunction with hand signs, while the Red Indians suppress all facial expression.

The Red Indians, on the other hand, are more imaginative and poetical. Thus, to deaf mutes, the *moon* is a crescent high up—it is signed by defining a crescent-shape with the thumb and first finger of one hand held up—the thumb and first finger being first brought together, then separated and rejoined as the hand is slightly lowered. To Red Indians, *moon* was " night sun "—sun being a representation of a circle high up, formed by the curved fingers and thumb. Deaf mutes symbolized the *sun* as a complete circle in the air, drawn with the first finger, followed by an indication of the sun's rays flowing in a straight line downward, or in the particular direction referred to—all the fingers and the thumb being pointed in the direction of the beam. *Gloomy*, in Red Indian, is " clouds close to the head " ; in deaf mute, the hand gesture symbolizes long face, or face drawn down, and is coupled with a gloomy expression. *Hungry*, in Red Indian, is " body cut across " ; in deaf mute, it is the action of feeling one's ribs by a downward movement of the closed right hand. *Glad*, in Red Indian, is " sunshine rising in the heart " ; the deaf mute claps and rubs his hands together with a pleased expression. *Angry*, in Red Indian, is " twisted mind " ; in deaf mute, the gesture for *angry* means " scowling eye ".

An important difference between the two systems of gesture arises from difference of outlook. The Red Indians considered the heart as the seat of emotion, and, generally, also of thought ; our own expression to " learn by heart " is an instance of the same mistaken idea ! The deaf mutes consider the heart as the seat

of the emotions, and the head (forehead) as that of thought.

Thus: while both systems sign *brave* as "heart-strong", and *fond* as "pressed to the heart", the Red Indians signed *forget* as "thought passing away" (by extending the left hand in front of the *body*, and sweeping the right hand over it and downwards, towards the left), while the deaf mute sign means "flicked away from the brain" (forehead). *Know*, in Red Indian, is "to draw from the heart and disclose"; in deaf mute it is "inside the brain". *Remember*, in Red Indian, is "heart know"; in deaf mute it is "brain (forehead) hold". *Think*, in Red Indian, is "draw from the heart"; in deaf mute the gesture is either to touch the forehead, or to hold the chin between thumb and first finger while resting the elbow in the palm of the other hand. *Trouble*, in Red Indian, is "heart uncertain"; in deaf mute the gesture is one of "overwhelming"—made by interlacing oval curves described by both hands in front of the face, while the head is inclined slightly from side to side.

Other instances of difference of outlook occur in such words as *dig*—in Red Indian, "to scratch like a badger," in deaf mute, "to use the hand as a spade"; to *marry*, in Red Indian, "to purchase and come together," in deaf mute, "to put a ring on the third finger of the left hand"; *cunning*, in Red Indian, right hand moved forward and upward with first and second fingers extended to represent the ears of a wolf, in deaf mute, the sign represents a peering eye. *Poor* in Red

Indian is "scraped bare"; in deaf mute, it is "to be out at elbow". *Rich* in Red Indian is "possess many horses"; in deaf mute, the sign represents a well rolled coat collar, and is coupled with a self-satisfied and important expression. *Good*, in Red Indian, is "level with the heart"; *bad*, is "thrown away"; in deaf mute, *good* is represented by the extended thumb, *bad* by the extended little finger. The origin of these signs for good and bad is uncertain, but they appear to contrast the strong useful thumb with the weak and (comparatively) useless little finger.

These differences will indicate how the same system of symbolizing ideas by bodily gesture may lead to very different signs amongst different communities, according to their state of culture, knowledge, and emotional make-up.

As to similarities between the two systems, it may be said that objects, actions, or ideas for which there is a self-evident gesture, tend to be similarly signed.

Thus, *ashamed* is, in both "languages", signed by covering the face; *avoid* is to pass by without contact; *cold* is to shiver—though *hot* in Red Indian is the heat of the sun on the head, while in deaf mute it is to blow on hot food in order to cool it. *Fire* is "flames flickering" —the flames being represented by the fingers and thumb of one (Red Indian) or both (deaf mute) hands. *Snow*, in both languages, is signed by extending the fingers, raising the hands high and lowering them with a waving or curling motion. *Tree* is signed by holding one hand up, with the thumb and fingers extended to represent

the branches. In Red Indian the hand is slowly raised, to indicate growth; in deaf mute the fingers are shaken to indicate the fluttering of the leaves, and the elbow is rested in the palm of the other hand to represent the ground. *Yes*, in Red Indian, is a hand gesture, representing bowing the head and body; in deaf mute the head itself is nodded. *No*, in both systems, is to reject (with the back of the hand). *I* (first person) is signed, in both instances, by touching the chest—in Red Indian, with the thumb, in deaf mute, with the first finger. *Possess* (possession) is signed, in both cases, by the closed hand; in Red Indian, the closed hand is held shoulder high, and is forcibly lowered to mid-height; in deaf mute the closed hand is pointed in the direction of the person referred to. Thus, *mine* is signed by touching one's own chest with the closed hand held back outward. The act of pointing to oneself, or to the person addressed, or to a third person—to mean *I*, *you*, or *he*, and of combining this action with a possessive sign (the closed hand to mean mine, yours, or his), is especially interesting. It is exactly analogous to verbal inflection such as is found in Latin and Greek and many modern languages, and gives a clue as to how inflectional languages may have arisen.

The deaf mute and Red Indian signs for *question* are a less obvious case in which the two methods correspond—the symbol used denotes "position uncertain". The hand is held up and shaken by wrist action; in Red Indian all fingers and thumb are extended; in deaf mute only the first finger is extended.

There is yet another instance of a silent sign language, developed this time by a very primitive people—*viz.* the Aborigines of North-West Central Queensland, Australia, which was brought to light by the investigations of Walter E. Roth of Magdalen College, Oxford.[1] This "language" was used more particularly when travelling in "foreign" districts, or on the war-path, or when hunting; it was also obligatory on certain special occasions, such as initiation ceremonies, when all speech was forbidden.

The use of this sign language extended (with local variations) over a wide territory, to the south of the Gulf of Carpentaria, with an area of about 130,000 square miles (about $2\frac{1}{2}$ times the area of England proper) which was inhabited by eleven different tribes.

Roth gives explanations and drawings of over 200 separate signs—descriptive of various animals, birds, snakes, frogs, fishes, insects, plants, foods, natural features (rivers, mountains, etc.), human relationships, clothing and ornament, tools and weapons, structures (huts, etc.), direction, number, duration of time (day, month), fire, sickness, and a few simple acts, states, and conditions. Some abstract ideas are also signed, such as: anger, yes, no, good, bad, forgetfulness, etc.

The Rev. Albert Smith has made a preliminary examination of these signs, and states that they are closely analogous, in principle, to those of the deaf

[1] *Ethnological Studies among the North-West Central Queensland Aborigines.* London: Queensland Agent-General's Office, Westminster Chambers, 1, Victoria Street. 1897.

mutes, and that some of the signs are actually identical in the two systems.

He also points out that the Australian signs are more primitive and more truly "ideographic" than those of the deaf mutes—which have developed "conventionalisms and crystallizations" which make them more difficult to memorize. He says that, from the point of view of symbolism, the Australian signs are extraordinarily clever. This last comment is illuminating, as indicating that the ability to symbolize by gesture is a natural gift of even very primitive races of men.

The reader will, it is hoped, agree that this reference to three independently evolved gesture languages has been worth while. It indicates how man—in the absence of speech (either through deafness or through difference of language)—naturally expresses his ideas, namely, by symbolic gestures.

Sound or Gesture

To the present writer, it is impossible to imagine any other way by which man could express ideas except by gesture; sounds by themselves cannot —as we have said—represent objects, shapes, motions, or qualities, except in the very rare cases where the idea to be signed happens to be naturally associated with a particular sound. Miau *is* a natural sound for cat, and Maaa for sheep, but a vocabulary based on such words would not carry even primitive man much further than the rest of his fellow animals. The importance

of onomatopœia, or the " formation of names or words from sounds that resemble those associated with the object or action to be named, or that seem naturally suggestive of its qualities " seems to have been exaggerated.

It appears, therefore, that we have no alternative but to look to gesture as man's instinctive method of expressing ideas. It becomes clear then, that, if we are to understand the real nature of human speech, we must first investigate the *gestures* of articulation, and then see what those gestures might be expected to mean. We can then compare the actual meanings of words with those which they would naturally bear if the movements of articulation which produce them were used purely as gestures of the type we have just been considering. The investigation, in the beginning, will not be too easy, for—as we have already pointed out—we are not naturally aware of what our tongue and lips are doing when we speak; we must therefore take conscious trouble to discover the movements we are performing. But the gestures of our tongue and lips are comparatively simple, and the reader will find no real difficulty in following them when once the method of examination has been understood.

It will be best to begin with the different postures of the tongue which cause the various vowel sounds. These postures have, in recent years, been very fully examined by X-ray photography,[1] but it will not be

[1] e.g. A. E. Barclay and W. Nelson, *British Journal of Radiology*, London, July, 1922. Stephen Jones, *British Journal of Radiology*, London, 1929. Richard T. Holbrook, *The Application of X-Rays to Speech Analysis*, La Haye, Batavia, 1932.

necessary for us to do more than examine, by a much simpler method, the postures of a few typical vowels. The method is as follows :—

Let the reader first wash his hands, so that he (or she) may, without scruple, place the first finger, or the little finger, of one hand on the tongue, as it lies flat in the mouth. The finger should be placed pointing backwards, so that it rests along the centre of the tongue, and reaches as far back as possible—but not too far, or the effect may be like that of tickling the throat with a feather! In this way it will be found quite easy to make a variety of different vowel sounds, and to feel, for oneself, the small changes of posture which the tongue makes as we change from one vowel sound to another.

Equipped with this method of research, we can now embark on the investigation of mouth gesture, and find for ourselves the answer to the first and most important problem of human speech—the question of how it comes that mouth gesture *means* what it does in human speech, and is universally used to express ideas.

A clue of great importance was given in 1872 by Charles Darwin—the great exponent of the theory of evolution by natural selection—in his book *The Expression of the Emotions*. He pointed out that there is in man a natural sympathy of movement between the hands and the mouth—so that children learning to write are seen to twist their tongues " in a ridiculous fashion " as their fingers move, or that persons cutting

with shears are seen to move their jaws in unison with their hands.

Darwin was not the first person to notice this natural tendency. Thirty-six years before, Charles Dickens, in the *Pickwick Papers* (published in 1836-7), had described Sam Weller Junior as "forming with his tongue imaginary characters to correspond" with the letters he was laboriously writing, in his effort to compose a Valentine to Mary, the pretty housemaid! Charles Dickens was a fine observer.

We have all seen instances of this sympathy of hand and mouth, and it can hardly be doubted that, in the beginning of man's evolution, when he was more child-like than at present, this childish tendency was much stronger than it now is.

Let us therefore imagine our primitive ancestors grunting, roaring, laughing, screaming, growling, and crooning to express their emotional feelings, and gesticulating with their hands, faces, and bodies to explain their ideas to one another. The gesticulations would, as we now see, be naturally accompanied by unconscious movements of their jaws, lips, tongue, and other movable parts of their vocal cavities.

Thus, as man developed a gesture language with his hands and body—namely, by making natural pantomime—he also, unconsciously, developed a more or less corresponding gesture language of jaw, lips, tongue, etc. that accompanied it. These mouth gestures would, as we have learnt, produce no audible effects if the gesticulator held his breath, and did not blow air through

his vocal cavities. But it would be very natural that he *should* grunt or blow—so as to draw attention to his gestures, or to show his emotional state of eagerness, impatience, anxiety, curiosity, passion, or otherwise. Whether he grunted or blew, the result of his unconscious mouth gestures would be to produce articulate speech (voiced or unvoiced) by a perfectly natural *but quite unconscious* process!

This natural vocal language—derived directly from man's natural pantomimic sign language—would, of course, be very different from any language that exists to-day. It would have no separate words, but merely groups of sounds which unconsciously represented the groups of postures and gestures of the bodily pantomime. But each isolated community would—as we have seen in the case of the deaf mutes—tend to codify their sign language—to use the same sign for the same idea—and to invent abbreviations, gestural "nick-names", and the like—so as to simplify their methods of communication. Their gestures would become specialized, and, in consequence, the vocal language which was associated with the gestural language would be specialized also. It is easy therefore to realize how the different families of human speech may have been evolved.

But in one respect we should expect to find a common element in all the various languages—namely, a tendency to use the most natural gestures for ideas which are easy to describe by bodily pantomime. To point up for *high*, or down for *low*; to make a large gesture,

and a large mouth, to signify *large*, and a little hand (and mouth) gesture for *little*; such gestures, and the mouth gestures related to them, would be expected to occur in all the different language groups. We shall see, later on, that there is at least some definite evidence that our expectation has been realized.

Chapter III

THE VOWEL POSTURES AND THEIR GESTURAL MEANING

In English speech there are thirteen separate vowel sounds in use—though we unfortunately and most illogically have only the five symbols, A, E, I, O, U, to represent them; they are the result of thirteen different postures of our tongue and lips, which have become (more or less) standardized. Let us now examine a few of them by the method which has already been described.

Experiment 1.

Articulate the vowel sound AH—as in the words *calm, art*, etc., keeping the mouth opening constant throughout the experiment. Look at yourself in a mirror, and notice that the tongue lies comparatively flat in the mouth, though it slopes slightly upwards towards the back of the throat. Place one finger along the centre line of the tongue—as explained at p. 36—so that the finger is pointing at the centre of your throat—then raise the finger a little (less than ½ in. will do)—keeping it parallel with its original position—and let the tongue rise to follow it, so that it is lifted about the same amount fore and aft.

Now grunt or hum—with the tongue in its new and slightly elevated posture—and it will be found that the resulting vowel sound has changed from AH to a sound like that represented by the EA in *earth*—or like the I in *mirth*, or the O in *worm*, or the U in *urn*. For this particular vowel sound has no symbol of its own, and borrows those of all the "cardinal vowels" in turn!

At present we shall describe it by letters ə͡ɹ (as in *earth*), though it is a single sound and not a diphthong, as the two letters might imply.[1]

Now raise the tongue still higher, keeping the finger along its centre as before, and on phonation (i.e. grunting or humming) the vowel sound will be found to have changed again, namely to that represented by the E in *end*.

Finally raise the tongue till the finger that rests upon it is pointing upwards and pressing against the roof of the mouth, and the resulting vowel sound will be found to be that of I in *it*—which is further changed to EE as in *eel* if the middle part of the tongue is pressed closer to the palate.

In this series of experiments the size of the mouth *opening* should not be varied at all—so that the changing effects may be entirely due to changes of level of the tongue relative to the roof of the mouth.[2]

[1] The reader must be careful to let the new vowel sound form itself and not to *try* to make any pre-determined vowel sound; otherwise his mouth and throat may unconsciously make other adjustments and complicate the experiment!

[2] It is *possible* to produce all the thirteen vowel sounds while the tip of the tongue is held up touching the palate as in forming the consonant L; the changes of resonance are then produced by changes of posture of the sides and back of the tongue and of the throat—but this, of course, is abnormal.

Experiment 2.

We now come to the question of the effect of varying the size of the opening-to-air of the vocal cavity, or rather of the front cavity which is formed in the mouth between the hump of the tongue and the lips. Normally we control this front opening by the posture of our lips, but the action will be made clearer if, in the first instance, we vary the aperture artificially as we did in the case of the tumbler experiment.

Place your tongue, as before, in the posture for the vowel AH, with the mouth wide open. Then cover the right or the left *half* of the mouth with the palm of one hand—held upright—taking care not to alter the AH posture in any way. On phonation it will be found that the vowel sound has been changed from AH to AW, as in *awl* or *all*. The change can be equally heard (though of course not so loudly) if we merely blow air through the cavities so as to produce whispered or breathed sounds. If half the mouth opening is alternately opened and closed with the palm, the other half of the mouth being open all the time, the sound AH-AW-AH-AW will be clearly produced.

If we now close one-half the mouth opening with the hand as before, and then close the other half as well, with the palm of the other hand, but so as to leave a very small central opening between the edges of the two palms, the AW sound is converted into a sound rather like o͡o, as in *oof*.

Lastly, if, while phonating, we alternately cover and

uncover the second half of the mouth opening (keeping the first half permanently covered) we shall produce a changing sound OO-AW, which is very like the word *war*, as pronounced (with the R silent) in Southern English. It will be seen that in this simple experiment we have actually produced artificial speech, by using our hands instead of our lips to control the size of the front aperture of our vocal cavities. We have also proved, beyond doubt, that these vowel sounds are the results of different postures of our tongue and lips.

Let us now consider what the various postures—and consequently the vowel sounds which they produce—might be expected to mean, from the point of view of pantomimic gesture.

AH, due to an open mouth and tongue laid flat, might mean that which is wide open, or large, or spacious. Or, from the point of view of tongue posture, it might mean that which is flat. (In Sumerian *water* is A, *ocean* is AB).

E͡A (as in *earth*) would mean something less spacious than AH, but would not be so gesturally distinctive as AH; it might also mean something less flat than AH.

E (as in *end*) represents the tongue held at mid-height, and might therefore mean at the middle, whether of size, height, etc.

I (as in *it*) and EE (as in *eel*) are the results of the tongue being placed in the highest position (being raised still further at the middle for EE); the tongue is forward in the mouth, and makes therefore the smallest front cavity of all the English vowel postures. I and EE may

therefore be expected to mean that which is high or forward (near) or little.

$\widehat{\text{AW}}$, being the result of substantially the AH tongue posture, but with partially closed mouth opening (technically called lip rounding), might indicate enclosure, or largeness—in fact, a *yawn*ing cavity!

$\widehat{\text{OO}}$ represents the highest degree of mouth closure. It is the result of a large mouth and protruded lips—nearly closed. Actually in forming $\widehat{\text{OO}}$, the tongue is not held in the AH posture (as in our experiment at p. 40) but is appreciably raised further at the back—as may easily be verified by testing with the finger. The $\widehat{\text{OO}}$ posture, therefore, produces an elongated tubular mouth, nearly closed at either end. The gesture may be expected to mean something enclosed, or hollow, or full, or tubular, or elongated, or (having regard to the lip projection) something projecting forward. $\widehat{\text{OO}}$ is the most characteristically pantomimic of all the vowel postures, and is therefore a good subject for study in any language.

Let us now compare the groups of words with similar consonants—such as *leap, lip, lap, lop, loop*; or *heap, hip, hop, hoop*; or *peel, pill, pile, pale, pail, pall, pool.* In each group the same sets of consonants are combined with different vowels and it will be seen that a certain measure of vowel symbolism *is* evident in each series. Thus:—

Leap is "higher" than *lip.*
Lip is "higher" than *lap.*
Lop—to hang limply—is "lower" than *lap.*

Loop, obviously imports the hollow rounded encircling idea of the o͡o gesture. So also :—

Heap is something high.

Hip is high also—namely, when its owner is lying on his side—but not so characteristically high as a *heap*.

Hop is a low-level gesture, near the ground.

Hoop—like *loop*—is an encircling U gesture word.

Peel—small square tower—is certainly high—so is a *peal* of bells.

Peel (rind) is the extreme outside of the fruit, etc. which, gesturally, might well be represented by a high tongue posture close to the palate.

Pill is a little object.

Pile and *pale* (pointed wood for fencing) are certainly larger if not lower than *pill*! The symbolism of *pale* (pallid) which is a descendant of the family of the Sanskrit word PALITA, grey, is not evident.

Pail (Old English PAEGEL, gill, Old French PAELLE, frying-pan) is certainly "lower" than *peel*.

Pall, a cloak, is a large enclosing thing—*pool* is a relatively large encircled thing.

Or, take the series: *Sleet*, *slit*, *slate*, *slat*, *slut*, *slot*. *Sleet* is fine-textured and high up; it moves in a slant. *Slit* is a cut or tear lengthwise—less fine than *sleet*; *slate* is a laminated rock, "easily split into flat smooth plates"—like the "cutting or tearing lengthwise" of *slit*—indeed, *slates* may be "slit". It will probably be felt that *slate* is a coarser-grained idea than *slit*. *Slat* is a narrow piece of wood, thicker (in most cases) than a *slate*. *Slot* is a groove or channel—a large variety of *slit*.

It is needless to burden the reader with further series, but a few pairs, and triplets, of contrasting words may be permissible in conclusion :—

Pin — Pen
Fill — Fall
Nib (pen) — Neb (mouth)
Reel — Roll
Flit — Float

Reap — Rape (from Lat. *rapa*, turnip)
Rape (seizing by force)
Reed — Rod — Rood (Cross)
Spit — Spout
Steep — Step — Stoop

In each case, and in many others that could be mentioned, we see the symbolism of the contrasting vowel gestures reflected in the meaning of the words; speaking generally, the size of the front cavity of the mouth (i.e. between the front slope of the tongue and the lips) gives an indication of the size, or else the height of the tongue relative to the palate gives an indication of the height or level of action of the object—in comparison with the other members of its group.

Thus, our English words *air* and *ether*—which are derived from the Greek words AĒR the lower air, and AITHĒR the upper air—offer good examples of the symbolism in question.

In AĒR the tongue rises from the flat posture A to the high vowel posture Ē and then sweeps back (R); the tongue, in fact, imitates exactly the natural hand gesture for describing the air which surrounds us.

In the Greek word AITHĒR the flat tongue (A) rises to the high posture of I and then rises still higher till it lightly touches the roof of the mouth (TH) and then sweeps backward at the high level (ĒR), to represent

the upper air. Our word *ether* has lost the original rise from the A posture, but retains the rest of the gesture.

A very interesting "all-vowel" Greek word of the same type is IAU-Ō meaning "I sleep", where the tongue starts at the high posture I then drops and flattens (A) and stretches out U-. The whole gesture IAU- thus suggests the action of lying down stretched out—as in sleep. (The final Ō is a verbal termination indicating the first person and present tense.)

It is interesting to note that Dr. Alfred Russel Wallace—Charles Darwin's rival in the development of the theory of evolution by natural selection—also contributed his quota to the explanation of the nature of human speech. In the *Fortnightly Review* for 1895 Wallace pointed out that in many English words the gestures of tongue and lips are appropriate to the meaning of the word. Summarizing his views, he considered it "in the highest degree probable" that the pantomimic use of the various parts of the mouth constitutes "a fundamental principle which has always been at work both in the origin and in the successive modifications of human speech".[1]

Alphabetical Symbols

We have spoken of the alphabetical symbols for the vowel sounds and their scanty number in proportion to that of the vowel sounds themselves. It may be of interest, therefore, in that connection to mention a quite

[1] For earlier references to the gesture theory see *Human Speech*, pp. 134, 156–8, and *Babel*, by Sir R. Paget, Kegan Paul, 1930, 2/6; pp. 54–5.

unintentional gestural relation which exists between our present (Roman) vowel symbols and the mouth gestures which they *really* represent.

A, which in its earliest form is often laid on its side, is suggestive of an open mouth. E, or better still, Ɛ, represents an open mouth with the tongue shown at mid-height. I is suggestive of an upright tongue. In small, as distinct from capital lettering, *i* is even provided with a dot at the top, as if to indicate that it does not touch the roof; whereas *l*, in the making of which the tongue tip does in fact touch the roof, is made taller and has no dot! O represents the rounded mouth which produces the O-sound—intermediate between AW and OO. U suggests the deep mouth with projecting lips which produces the OO-sound; it would be better shown on its side thus: ⊂ .

It is generally believed that these various symbols were originally derived from pictographs—i.e., pictures of objects, and it is practically certain that no imitation of mouth postures was ever intended by the original users of the Alphabet. The interesting fact remains that, not merely in the vowel symbols, but throughout our Alphabet (and many other Alphabets also), there *is* a visible relationship between the symbols which man ultimately *chose* to represent speech sounds, and the mouth posture or gesture to which those sounds are due. The natural sympathy between hand and mouth appears to be at work, but in the reverse direction to that which Darwin observed. The hand is now unconsciously imitating the mouth! It is also worthy of note that

in the *Just So Stories* of Rudyard Kipling (1902) "How the Alphabet was Made", he indicated the same idea with respect to A, the carp's mouth; O, the round mouth, and U, "the O noise run out all thin".

We now come to the consideration of the consonants—how they are produced—and what they mean.

Chapter IV

THE CONSONANTS

If, as we have found, the vowels are the results of certain standardized tongue and lip *postures*, the consonants may be described as the results of similarly standardized tongue, lip, and soft palate *gestures*. We will, as before, use the method of experiment—beginning with the lips as being more accessible for our purpose.

Experiment 1.

Hold the mouth in the posture for making the vowel sound o͡o, (as in *oof*)—with the lips protruded and the lip opening quite small. Phonate, so as to produce the voiced vowel oo, and, *while* voicing it, cover the lip opening with the first finger moistened and laid across the lips so as to close them completely for an instant; then remove the finger rapidly so as to uncover the lip opening once more.

If this action of covering and uncovering the lips is performed several times in succession, we shall hear the speech sound boo-boo-boo- produced by combining the vowel oo with the consonant b. b, therefore, is the acoustic result of the gesture of closing and opening the front orifice of the mouth while held in the oo posture.

Experiment 2.

Now take the other vowel sounds, AH, ÊA (*earth*), E (*end*) and EE (*eel*) and sound them. But first adjust the mouth opening so that it can be completely closed by the first finger laid across the mouth—i.e., with the mouth opening made small in height but extended from side to side as in the attitude of smiling. It will be found that the B consonant can equally be made, by the same method, with all these vowel sounds. It is clear, therefore, that the consonant B is the result of a lip closure and release. If we repeat these experiments *without* phonation and use a little more air pressure, there will be no difficulty in producing a whispered B, or P, in the same way.[1]

Experiment 3.

Resume the OO posture, but before phonating, close the lips with the moistened finger, and hum through the nose. On releasing the lip closure as before, we shall get not BOO, but MOO, and similarly with the other vowels as in Experiment 2. We find therefore that M is the result of the same lip gesture as B or P, but combined with the action of humming through the nasal cavity. Gesturally, therefore, B, P and M are similar—but M represents a *continuing* form of lip closure, whereas B and P are momentary effects which occur at the sudden opening or closing of the lips. The opening or closing

[1] Actually, to make a whispered P instead of a whispered B, we have to make an (unconscious) adjustment in our throat—immediately above the vocal cords.

of the passage from the throat to the nasal cavity is performed—as already mentioned—by the action of the soft palate, and is not under our conscious control. The valve-like movement of the soft palate does not appear to have any gestural meaning—but its effect in producing a continuous sound *during* the lip closure, has, as we shall see, a definite symbolic meaning—namely, that of a continuing closure or grip or state.

One other fact may be mentioned in connection with this series of consonants—namely, that it is also possible (as we have seen) to produce a whispered B as well as a whispered P by the *same* process of covering and uncovering the lip opening with the finger. The reason is that the ultimate difference between P and B (apart from phonation) is due to the action—not yet fully understood—of certain movable parts of the throat (pharynx) immediately above the vocal cords. Here again we have to do with an action which is not under our conscious control, and of which the gestural meaning (if any) is not, at present, apparent.

Experiment 4.

Form the OO posture as before; but, this time, rest the edge of the first finger (held horizontally) against the upper lip so as not to interfere with the production of the OO sound. Then, while phonating, turn the hand slightly—with the finger still held horizontally across the upper lip—so that the finger rolls downwards over the lip opening, and partially obstructs it. Partial closure and release will produce the sound WOO-WOO.

Experiment 5.

Form the oo posture again; bend the first finger so that it will fit snugly round the under lip—the finger being placed across the mouth at such a height that it lightly touches the projecting lips and partially obstructs the free passage of the air as it comes out at the small lip opening, and deflects the air current upwards towards the tip of the nose. If the crooked finger is thus placed and removed in succession, while the oo is being sounded, with rather more air-supply than for woo, it will produce the speech sound voo-voo. The same action, without phonation, can be made to give a whispered foo-foo.[1]

The reader will have noticed that the v and f in this experiment are not made in exactly the same way as we normally make them with our mouths. We draw back the lower lip so that it rests against the upper teeth. But the effect is much the same; the air stream is partially obstructed and deflected by the lower lip, and produces in this way the characteristic v or f sound. Some nations actually use a "bilabial" v made by the two lips so that the air is deflected upwards as in our experiment.

This series of experiments will have made it clear that the consonants b, p, m, w, v and f are all the natural results of lip closure of varying degree—with or without the use of the nasal cavity, and with or without phonation. They will also have indicated how simple the formation of speech sounds really is!

[1] Or a whispered voo-voo, as in the case of p and b.

Having grappled with the lip gestures and studied their action in detail, it will be relatively easy to understand the action of the tongue gestures, though they are of necessity less open to observation. We will begin, as before, with the most forward gestures.

S as in *soup*, and Z as in *zoo*, are related in the same way as F and V were found to be. S and Z are made by the same tongue gesture, namely, a reaching forward and upward so that the two sides of the tongue tip touch the edges of the front teeth ; they do not entirely close the passage, but leave a narrow channel between the tongue and the back of the front teeth. The wind from our lungs whistles through this short and narrow passage, and produces the characteristic hissing sounds of S and Z. From a gestural point of view, therefore, S and Z represent a reaching forward or upward, or a touching forward, or bringing to a point or jet. If, keeping the *tip* of the tongue still in the S-posture, we lower the rest of the tongue, immediately behind the tip, so as to do away with the little central channel—the S becomes changed to a TH, as in *thigh*. A Z, in the same way, would be changed to a TH as in *thy*—which should properly be spelt DH and not TH.

A TH-sound, almost indistinguishable from the one just described, can be made by nearly closing the tongue tip against the upper part of the palate just behind the front teeth. A complete closure of the tongue against the palate just behind the front teeth produces the consonants T or D or N—just as the complete closure of

the lips gave P or B or M—according as the gesture was unvoiced or voiced or made with the additional action of the nasal cavity.

We have found, therefore, that TH and DH are the results of an imperfectly closed T and D gesture, and that N represents a prolonged T, D gesture with phonation through the nasal cavity. Also that, comparing the P, B, M and the T, D, N, series, P, B, M, represent closures in front, while T, D, N, represent closures further back —namely in the *middle* of the mouth.

L is the result of lifting the tongue so that its tip (but *not* the whole width of the tongue) makes contact with the palate. The passage is left clear on either side of the tongue tip, and the contact with the palate is only momentary. If, starting with the tongue in the AH posture, we raise it to touch the palate, we get the sound AHL; similarly, if we begin with the tongue touching the palate and suddenly lower it to the AH posture, we get the sound LAH. If we try the experiment of holding our tongue tip in the L-posture against the palate, and we then try to sound a *continuing* L, we find that the sensation of the L-sound is quickly lost. If—keeping our tongue in the L-posture and our lips unmoved—we close and open the lip opening *by hand* (as we did in the BOO-BOO-BOO experiment) we shall find that our continuing L then sounds more like the vowel EE, and we shall get a result like BEE-BEE-BEE-, even though our tongue is held in the L-posture all the time.

It is clear from this experiment that a true L-sound

is essentially dependent on a tongue gesture of touching the palate *momentarily*, and that a continuing touch or posture does not produce, to our ears, the L-sound; in other words, L represents a gesture, not a posture of the tongue. Gesturally, therefore, L will be expected to refer to motion towards, or motion from, a point, namely the point of contact of the tongue tip and the palate.

An artificial L-sound, as in LA, can be made by holding the 1st, 2nd, and 3rd fingers together side by side and putting them into the mouth so that their tips touch the palate just behind the upper front teeth—keeping the tongue flat as for the vowel AH. If the fingers are *suddenly* lowered so as to touch the flattened tongue the sound LAH is artificially produced.

Closely related to L is the consonant R. In English—as spoken in different parts of the country—there are many different kinds of R-sound—made by different gestures of the tongue or lips. The original Aryan R would appear to be that which is still used in "Wessex"—in which the tongue is lifted very much as for L, but with the tip of the tongue curved *strongly backward* towards the soft palate. Gesturally, this action obviously would denote bending backward, or surrounding, or curving. The more "polite" R of Southern English is made much more like an L, except that the contact with the palate is formed by the sides of the tongue instead of by the tip. This R-sound is not nearly so distinct as that of the re-curved Wessex R. The trilled R also is made without bending back the tongue; the sides

of the tongue make firm contact with the sides of the front part of the palate, but the tip itself is loose and flutters in the breeze so as to make rapid contacts with the centre of the palate. In the Northumberland dialect, R is made quite differently—namely, by a constriction of the throat. The French trilled R is made by the fluttering of the uvula.

R is a difficult sound, and many English people cannot make it at all, but substitute a lip gesture for the tongue gesture—as in the well-known phrase: "Awound the wugged wocks the wagged wascals wan". Many English speakers do not use their tongue even for articulating L—they say Wundon for London. In these cases there is no attempt to imitate the gesture—but rather an effort to make a decent substitute for the *sound* of the true R (or L) gesture.

Going still further back in the vocal cavity, we have the closure of the back of the tongue against the soft palate, which produces K or G, and the continuing (nasal) sound NG as in *hang*. K and G may therefore be expected to mean at the back, or a closure or release at the back—NG (phonated through the nose) being the continuing state of the same closure. K and G and NG might also refer to that which is within (as being furthest back of all the tongue gestures) or that which is fundamental, or personal to the speaker. Thus, the gesture of touching the back of the throat with the (back of the) tongue would be analogous to the Red Indian or deaf mute gestures of touching oneself with the hand to mean "I" or "mine".

The Scots CH as in *loch* is, in effect, a partially closed K.

H is the result of a partial closure made immediately above the vocal cords—the gesture is not consciously made, and does not generally appear to bear any pantomimic meaning. H- in some English words is derived from K-, for example, *helm* from KEL- cover and hide.

Lastly, there are certain intermediate gestures, such as the high fore and aft tongue gesture which produces the SH (or ZH) sound, or the somewhat similar gesture (lower in front) which produces the Scots CH as in *lecht* (cp. German *licht*).

SH (or ZH)—due to the tongue being raised high fore and aft so as to be very near the palate—may be expected to symbolize that which is held up or overhead—or covering—or forming a thin layer (viz. the thin layer between the upper surface of the tongue and the roof of the mouth).

CH (*lecht*) on the other hand would appear to be gesturally equivalent to an imperfectly formed K, though somewhat more forward in position. Thus the German word *ich* (from which the English word *I* is derived) would be comparable with the Red Indian and deaf mute sign for *I*, but with the tongue gesture less perfectly finished.

There remains the J-sound, which is hardly distinguishable from a combination of D and ZH (-ZH, as in *pleasure*, being the voiced form of SH, which has already been considered). The unvoiced form of this gesture produces TSH, as in *cheer*, *chance*, etc.

Having now accustomed ourselves to take notice

of the postures and gestures of our " organs of articulation " we are in a position to study some of the fundamental words of English, and to see how far the meanings which they carry are actually related to the mouth gestures which produce them.

Chapter V

THE MEANING OF MOUTH GESTURE

Now that we have studied the different types of mouth gesture which we commonly make in speaking English, we have come to the very heart of our problem—namely, the question of what these gestures *mean*, and whether there is evidence to show that the words which we use are really built up on a systematic plan.

We have seen that, in the sign languages, gesture —made by the hands (and to some extent by the body as a whole)—is instinctively used by mankind as a method of expressing meaning.

We have also seen that these gestures are not thought out by those who make them—they come naturally. We must expect therefore that—if the gesture theory is true—the same thing will apply to the gestures of human speech.

One very essential point has been established—that mankind has a natural faculty for symbolizing "ungesturable" ideas by the method of analogy. One cannot invent a *natural* gesture for *true* or *false*, or for *remember* and *forget*, or for *perhaps* or *question*. But it is evident that the Red Indians and the deaf mutes found a natural method of overcoming these difficulties.

To them, *true* was "straight talk" or "on the square", *lie* was "two tongues" or "that which cuts across the mouth, i.e. across the spoken word"; *perhaps* was "two hearts" (the heart being considered—by the Red Indians—as the seat of the mind) or it was "this way and that" or "good and bad alternating".

In other words, abstract or other ungesturable ideas were instinctively symbolized by reference to gesturable ideas which illustrated them or were felt to be related to them.

In modern life, we have inherited so large a vocabulary of ready-made words that we are not often called upon to invent verbal symbols for ourselves in this way; but when the need does arise—as, for example, when a new invention comes into use—we commonly name it on the same principle.

The electromagnetic waves, which were foretold by Clark Maxwell and actually discovered by the German scientist, Hertz, were made the basis of a new art of radiating out invisible and impalpable signals, which could be received by simple apparatus in our own houses and converted into audible speech. When a name had to be found for this process we instinctively thought of the old-time sower scattering his load of seed over the land, so that each grain might germinate and come up where it fell—and we called the new art "Broadcasting".

I have referred elsewhere[1] to the little child of less than 2 years old who, when she first saw an

[1] *Babel*, p. 58.

aeroplane in flight, immediately named it "*dicky-puff-puff*"—a perfect example of the method of analogy made instinctively "on the spur of the moment".

Here we have the clue to the method of symbolism for which we should look in our study of the gestures of human speech.

One other very important thing has been already noticed—namely, that the same mouth gesture may be expected to have several very different meanings according to the point of view from which we consider it. Thus, the gesture of the vowel sound oo may be considered as meaning something hollow, or long, or full, or pointing forward. The "hollow" meaning might also, figuratively, mean *empty*, as well as *full*, just as we might consider a *barrel* as symbolizing hollow (*empty*), or a generous measure (*full*), or simply as something round and fat.

The gesture of the vowel sounds I or EE may mean *high* or *near*—if we consider the posture of the tongue, or it may mean *little*—if we consider the size of the mouth cavity which is formed *between* the tongue and lips. We must therefore be prepared to find the same root word bearing several very different meanings—each of which is related to a different pantomimic aspect of the same mouth postures or gestures.

The mouth gestures which produce human speech are, as we have seen, related to the natural pantomimic gestures of man's hands and body generally. But the mouth gestures are, necessarily, but a mere shadow of the hand and body gestures. The human tongue is

indeed very flexible, and can vary its form to a great extent. It is like a miniature wedge or pyramid made of flexible india-rubber, of which the base is firmly fixed; its apex can tilt this way and that; it can flatten or broaden or elongate or contract or become trough shaped; it can bend forward and back; but it cannot subdivide or throw out branches! Considered as a shadow of the human hand, it is a hand in which fingers and thumb have all fused together. It can be held up as a whole to symbolize *one*, but it cannot fork into two prongs to symbolize *two*!

There is another limitation which has its effect on language—namely, that movements of the tongue from side to side produce hardly any changes of resonance, and therefore are of no *use* in speech, because the effects are not *audible*. The experiment is easy to try.

Let the reader set his mouth as for the vowel sound AH, and then waggle the tip of his tongue from one corner of his mouth to the other, while he continues to sound the vowel. The movements of the tongue tip—provided the rest of the tongue continues to lie flat in the mouth—produce hardly any effect. The same thing occurs in the case of E͡A (*earth*), or in the U-sound in *up* (like the French word *à*), or in the mid-height vowel E (*end*). In the case of the vowels due to partly closed lips (AW, O and OO), waggling the tongue tip does produce a slight effect, because it tends somewhat to obstruct the lip opening as the tongue tip passes by this opening on the inside; the effect is most noticeable in the case of the smallest lip opening, OO.

An interesting effect can be produced by holding the mouth and lips in the posture for the vowel sound AW, and then vigorously moving the tongue from side to side, with the tip of the tongue pushed forward just behind the lips, so that it swings from one corner of the mouth to the other. If, while performing this exercise, the reader will phonate—i.e., hum with his vocal cords—a speech-sound will result which cannot be exactly written in English, but which is suggestive of our words *warble* or *bauble*. It is conceivable that our word *wobble* is derived from the sound made by this tongue gesture —meaning (gesturally) to swing from side to side.

Speaking generally, it may be said that tongue movements from side to side are of no use in speech, and that only up and down, or to and fro movements are effective in producing recognizable changes of speech sound. It follows that, in the development of speech, man was forced to use up and down, or to and fro movements of his tongue to represent side to side gestures of his body. There are, in fact, only a comparatively small number of *typical* postures and gestures which the human mouth can perform, and man has had to exercise his (unconscious) ingenuity in ringing the changes on these gestures and modifying them in small details in order to devise a sufficient number of distinctive "words".

Groups of words of the same sound but different meanings—like our words *beach*, *beech*; *box* (a case), *box* (to fight with the fists), *box* (the tree), and so on, almost certainly arose out of the shortage of distinctive

gestures; they are known as "homophones", i.e., same-sounds. They are obviously very undesirable, as their meaning is ambiguous and can only be understood from the context. Thus, in English, the spoken words: "Let the city be rayzed" might either mean "be built up" (raised), or "levelled to the ground" (razed)! If only the I gesture in the word "ra-*i*-sed" had been preserved, as it still would be in the mouth of an East Londoner, (so as to indicate the rising from A to I by the tongue's action in rising) there would in this case be no uncertainty as to the city's fate—provided, of course, that the speaker did not pronounce "raze" in the same way!

Let us now study some typical mouth gestures, and the English words which depend on them, and see how far the principles which we have been considering are found to be operative in our speech to-day.

We will begin (as before) at the front of the mouth, and work backwards towards the throat. The sound IP (as in *dip, hip, tip*) and the analogous sound EEP, (as in *deep*) are produced by the tongue tip being placed high and forward—close behind the upper teeth (to form the I or EE)—and the lips being then closed just in front of the teeth and opened again to form the P. Pantomimically the combined tongue and lip gesture of IP and EEP would be expected to mean something small or high or near, cut off or shut, close up or right in front.

But it will be noticed that the -IP gesture does not end with the lips closed, but actually adds a final release

of the closure—during which a little puff of air escapes between the lips, but without any accompanying phonation of the vocal cords ; in fact, the final sound is like a whispered PE͡A as in the Southern English pronunciation of *Perth* or as in the French *peu*. It may therefore be expected that the terminal -P in -IP and -EEP may also signify a bringing together or touching momentarily. Indeed, we find -P obviously meaning this, in the words *clap*, *slap*, *flap*, *nap* (eye shutting), *snap*, *rap*, and *tap* ; in *trap* it is evidently the closure and not the ultimate release which is emphasized ; so also in *cap* it is the closure (round the wearer's head or body—in the Roman meaning of CAPPA—our word, *cape*) which is symbolized.

Generally speaking, therefore, -IP or -EEP may be expected to mean—small, high, near, cut off or closed at the end, or close up or in front, or brought together rapidly and separated again, or touching each other momentarily.

Now let us make the crucial test, and look at *all* the short English words which end in -IP and -EEP ; they can readily be found in any Rhyming Dictionary—where the words are listed in alphabetical order from the ends of the words instead of from their beginnings ! Here is the list, extracted from Walker's Rhyming Dictionary (1836)—pp. 343-5, omitting the compound words :—

Deep, *sheep keep*, *sleep*, *peep*, *creep*, *steep*, *sweep*, *dip*, *gip* (to take the guts out of herrings), *grip*, *hip* (joint), *hip* (fruit of the briar), *chip*, *ship*, *whip*, *skip*,

lip, flip, slip, nip, snip, pip, pip (to chirp like a bird), *quip, rip, scrip, drip, grip, trip, strip, sip, tip.*

I have added the words *grip* and *quip*—which are not mentioned in Walker. Here there are thirty-three words, with, at first sight, nothing in common except their termination in -EEP or -IP. Let us study these words in turn, and then consider the result.

Deep: is described in the *Oxford Dictionary* as going far down from the top—it is derived from Old English DIOP. The Old English DIOP was gesturally much more apposite, for DI is the tongue gesture of touching high, and the fall to the low tongue posture of O, followed by the lip closure P, would be entirely appropriate to the idea of going far down from the top, and then to a contact at the bottom or end of the movement. *Deep*, therefore, is a damaged word which has now lost half its gestural significance, but in Old English was truly gestural.

Sheep: Old English, SCÉAP—Dutch SCHAAP—etymology dubious. Here the symbolism is not obvious, but a suggestion may be hazarded. SH- and the related mouth gesture of SK- are the results of the tongue being held high, fore and aft. The symbolism appears in such words as *shade, shale, shame* (covered over), *shape, shave, shear, shawl, sheath, shed, shar* (of a ship's lines), *sheet, shelf, shell, shield, shim* (thin slip or wedge), *ship, shirt, shoal, shoe, shop* (Old Eng. SCEOPPA, a booth), and *shore.* In all of these there is the idea either of a surface held high (as in *shade, shield, shawl, shed, shelf, shore*), or of something flattened out—e.g., *shale, shim, shoal*, or of something covered over—as in *shame, shell, shape*

sheath and *shop*. In *shame*, the symbolism is, of course, figurative, and suggestive of the action of covering one's head, as in the Red Indian sign language. The SH- in *sheep*, therefore, suggests the "something covered over" of which we have spoken above—i.e., the animal that is "sheathed" and enclosed in its sheath (P). The vowel EE was not found in the earlier forms of the word. In Dutch, for example, it is SHAAP—where the AA, due to a flat tongue posture, suggests the flat appearance of the sheep's back, while the word itself is suggestive of the English word Shawl—from the Persian SHAL (pronounced shawl). The final lip closure P may indicate the enclosing character of the covering SH. Sheep is, therefore, also a damaged word, meaning covering—flat, enveloped, i.e., the flat (backed) animal that wears the sheepskin, though it still retains a measure of its original gestures.

Keep: is due to a grip of the back of the tongue against the back of the throat (K-), the body of the tongue being held high, close to the palate (-EE-), followed by a lip closure (-P). The gesture as a whole indicates to hold close to oneself, fore and aft.

Sleep: begins with the back-sliding tongue gesture SL-,[1] in which the tongue tip slides back (close to the palate) from the forward S position to make contact at the L position, while the back of the tongue (held high for S) droops downwards for

[1] Mr. J. B. Firth, in his publication *Speech*, Benn's Sixpenny Library, No. 121, 1930, pointed out that nearly all the English words in SL- have a pejorative (i.e. depreciatory) meaning, but without indicating any reason for the fact.

L, e.g. in such words as *slack*, *sledge*, *sleek*, *slide*, *slime*, *slip*, *slope*, *slouch*, *slump*, *slur*, and *slut*. The rest is plain sailing. To *sleep*, is to slide back into the condition of "EEP"—in which the tongue and lips mimic a closing eye—as in the words *peep* and *weep*. It is true that in Old English the word was SLAPAN and SLAEP, and that the A vowel then suggested rather the action of lying down, than that of shutting the eyes, but the lip closure P (without any vowel gesture) can suggest a closing eyelid.

Creep: Old English CRÉOPAN—is clearly gestural. It begins with the back of the tongue touching the back of the throat (K), follows this by bending back the tip of the tongue (R), and then brings it forward, keeping near to the palate (É), and ends with a lip closure and release (P). The tongue is visibly *creeping* towards the lips, which carry on and complete the gesture as the creeping comes to an end. The EE vowel imports further the idea of smallness or closeness in the gesture—as compared, for example, with the similar, but larger-mouthed consonant gestures of *grab* or *grap*(ple), for it must be remembered that K and G are due to the same tongue-to-soft-palate gesture, just as P and B are due to the same tongue-to-lip closure. Similarly *crab* may symbolize that which creeps (KR-) and bites or pinches, as in the closing mouth gesture of -AB; but KR- can also mean to surround or enclose, as it does in *crown*, *cramp*, *crimp*, *crock*, *croft*, *crop*, etc.

Steep: Old English STEAP—cognate with *stoop*. The gesture of ST- is very similar to that of SL-, but,

so to speak, stouter or more emphatic. The tongue makes a full stop against the palate (T), and momentarily shuts off the air flow altogether instead of merely lightly touching the palate as in SL-. *Steep*, therefore, would appropriately mean going back (ST-), from high up (EE) to the close or end (-P). The older form, STEAP, was definitely more expressive, since it indicated a fall from the tongue posture of E to that of A.

Sweep: (Middle English, SWEPEN, from Old English SWAPAN, to swoop). In *sweep*, we have a clear symbolism of the original meaning, viz., to glide swiftly—SW being a tongue and lip gesture of continued motion or direction, as in *swallow*, *swan*, *sway*, *swell*, *swift*, *swim*, *swing*, *swipe*, *swirl*, *swish*, and *sword* (if we pronounce it as it is still spelt). The terminal -P, which is very apposite in *swoop* (where the motion ends in the capture of the object swooped upon), does not seem appropriate to *sweep*; an F or V—as in the cognate German word SCHWEIFEN—would have been better! Our word *swipe*, to hit at cricket, does show the swift motion (SW-) and the contact (-P) at the end of it.

Reviewing the meanings of the words in -EEP, we find that all—except perhaps the momentary terminal closure of -P in *sweep*—are appropriate to the natural gestural meaning of the movements of articulation which produce them, though in one or two cases the gestures are "slightly soiled".

Let us now carry on the investigation of the words in -IP by the same method.

Dip: The tongue starts making a closure against the

palate, just behind the front teeth; it dips a little to the vowel posture of I, and then the lips carry on the movement, the under-lip rising to make a final closure with the upper lip. The whole constitutes a little U-shaped gesture—entirely appropriate to the meaning of the word *dip*.

Gip: (to take the guts out of herrings) is in *Walker*, but is not given in the *Concise Oxford Dictionary*; it is gesturally appropriate to the action of drawing out from the back, G-, to the front -P, the smallness of the action being indicated by the vowel I.

Grip: (from root *gripe*). GR- (like KR-) is a surrounding gesture, beginning with the back of the tongue pressing against the back of the throat, while the tip of the tongue bends back towards it—like the combined action of the fingers and thumb in gripping. The whole word means, therefore, a surrounding (GR-) closure, made high up—or small or tight, so as to enclose (-IP).

Hip: At first sight the meaning of this word—as applied to the joint of the human thigh—does not seem at all appropriate. HI- should mean something high or small or forward. But if we compare *hip* with the word of very similar gesture, *heap*, we obtain a clue to the probable explanation. *Hip* seems to be the little "*heap*" made by the projection of the human hip when its owner is lying on his side—the terminal -P indicates the close or summit of the projection. Compare the -P or -MP in the words *tip*, *top*, *cap*, *hump*, and *lump*. *Hip*, the fruit of the briar, is easily understood as a little closed-ended object. In its earlier form, HEOPE, or

HIOPE, the roundness of the object was also indicated by the rounding of the lip opening which forms the vowel O. But this has been lost in the modern articulation of the word.

Chip: a thin piece cut from wood or broken from stone—is rightly described by the *Oxford Dictionary* as the diminutive of *chop*, and is compared with the words *drip*, *drop*, and *tip*, *top*. The gestural explanation is obvious; -I- is a little mouth gesture; -O- (or rather the vowel sound represented by the letter O in *drop* and *top*) is a comparatively big mouth gesture closely analogous to the "yawning" vowel AW. CH-, which phonetically speaking ought to be written TSH-, and is nearly related to SH, which we have already examined, commonly means, as we have seen, something thin. *Chip*, therefore, naturally signifies something thin and small, cut off. The symbolism is precise.

Ship: Here we have SH-, the thin surface, high up, I, (possibly referring to its position in the water) and closed at the end, -P. Shi-oop, or shiop would have been more expressive, as in the words *sloop* and *shallop*, where the OO or O vowels express the hollowness of the structure. The original *ship* (SCIP) like our word skiff, must have been a very small, shallow affair, shaped or slightly "scooped" out of the solid wood; "skip" would in fact be a little "scoop".

Whip: originally meaning to move with sudden motion—is the result of projected lips, WH-, (or rather HW-, since the H, if sounded—as in Scotland—precedes the voiced W) being followed by a rapid retraction of the

lips to the I posture, and a raising of the tongue followed by a final closure of the lips. *Whip* represents, therefore, an outward motion, followed by an inward motion. In Dutch, WIPPEN (without the H) means to skip or hasten ; while in Swedish, VIPPA is to wag. The gestural symbolism, therefore, is clear, though the to and fro motion of the lips in Swedish and Dutch does duty either for the lateral motion of wagging, or the circular motion of the arms in skipping ; this, however, is to be expected.

Skip : SK here evidently represents high up (like SH- as already noticed). -IP then represents a little motion brought to an end. The earlier Scandinavian verb, SKOPA, suggests a bigger "scope" to the movement ; skipping in those days may have been a more vigorous exercise.

Lip : must surely have been originally articulated by touching the upper lip with the tip of the tongue and then closing the lips. It is quite easy to pronounce the word in this way, and more gesturally correct !

Flip : imports the combined lip and tongue gesture FL —which compares with the hand gesture of flicking upwards with the thumb—as in *flag, flail, flame, flap, flash, flea, flee, flick, flight, flinch, fling, flirt, flit, flog, flop, flounce, flow, flush, flux,* and *fly*—in which motion, especially rapid change of motion, is implied.

It is also found in the words ending with the -FL gesture, as, for example, *baffle, scuffle, shuffle, rifle* (plunder), *ruffle,* and *trifle,* in which variable motion is symbolized. The most natural meaning of the gesture

of FL would be: to hold lightly in front (F) and draw suddenly upward from behind the point of holding (L), or to move swiftly upwards in a curve, as in the shape of the symbol L. The mouth gesture consists, as the reader can test for himself, of a partial closure or hold of the lower lip against the edges of the upper teeth, followed by a sudden elevation of the tip of the tongue to the palate. *Flip* thus naturally means a small (I) rapid motion (FL) brought to a sudden end (P).

Slip: starts with the backward sliding gesture, SL-, beginning high up, or on a small scale, (I), and ending suddenly (P).

Nip: imports the central continuing grip, (N), made on a small scale, and ended suddenly and forwardly (-IP).

Nip: meaning a small quantity of spirits (which the *Oxford Dictionary* describes as of dubious etymology) is easily understood as referring to the volume of liquid measured off by the small cavity between the upright surface of the tongue (N), the elevated tongue surface (I), and the closing lips (P). These two words of similar gesture, but quite different meaning, illustrate well how "homophones" may be developed—the first *nip* being dependent on the mouth gestures regarded as actions—the second on the size of the consequent mouth cavity considered as a measure of volume.

Snip: is an action word, dependent on the gesture of SN- which has not yet been examined. It is found in such words as *snack*, *snag* (jagged projecting point), *snail*, *snake*, *snap*, *snare*, *snarl*, *snatch*, *sneak*, *sneer*,

sneeze, *snick*, *snide* (counterfeit), *sniff*, *snipe*, *snood* (fillet worn by maidens in Scotland), *snook* (kind of fish), *snook* (contemptuous gesture), *snooze*, *snore*, *snort*, *snout*, *snow*, *snub*, *snuff*, and *snug*. Gesturally, SN- is very similar to ST- and to SL-. The tongue tip performs almost exactly the same backward movement, but with this difference, that in ST- the tongue makes a momentary closure against the palate and that in SL- there is a clear passage left on either side of the tongue tip (where it presses against the roof of the mouth), whereas in SN- the tongue tip and its edges make a complete *continuing* closure right across the mouth. SN- would therefore appear to be a more substantial and enduring drawing-in gesture than SL-, or one which keeps higher and in closer contact (with the palate) than SL-. In *snack*, originally meaning to snap, the tongue follows an S-shaped track—tip high and forward (S), back and up (N), tip down and forward to the vowel posture, back of tongue drawn backwards and upward to make closure with the back of the throat (K)—ending with a closure at the back, which is *not* obviously appropriate. *Snap* itself is much more appropriate. Many other words may be cited, however, in which a terminal closure at the back (-K) has much the same gestural significance as one at the front (-P). For example, *clack* and *clap*; *wrack* (twist) and *wrap*; *tack* and *tap*; *nick* and *nip*; *trick* and *trip*; *crock* (earthen vessel) and *crop* (of a bird); *stock* (stuck or fixed) and *stop*; *suck* and *sup*; *reek* (pile of corn or hay) and *reap*; *dank* and *damp*; *rank* and *ramp*; *crank* and *cramp*;

trunk (e.g., of an elephant) and *trump*; *hook* and *hoop*; *whisk* and *wisp*; in all of these it is the closure or bringing together which is significant, not so much the position (fore or aft) in which it is made.

But to return to SN-: in *snail*, *snake*, *sneak*, SN- seems to imply gliding motion, or rather a drawing-in, like the telescoping movement of the successive sections of a snake's body by which it moves. In *snag*, the SN- may indicate that which is drawn up—i.e., so as to project; *snag* means literally a jagged projecting point. In *snare*—as also in *snack*—the SN- suggests a drawing-in, prior to the surrounding gesture (-AR-), also in *snatch* and *snug*. In *snick*, the SNI- represents the small inward motion of the knife. In *sneeze*, *sniff*, *snore*, *snort*, and *snuff*, the drawing-in gesture of SN-, made high up against the palate, symbolizes the *drawing in of the breath* through the nose. In *snow*, *snipe*, *snide*, *snood*, and *snook*, the symbolism is not so evident, but is worth considering. *Snow*—Old English, SNÁW—rather suggests the fine textured material (S), held high up (N), or which drifts (SN) (instead of falling straight) and spreads over the flat surface (A) outwards (W). The Red Indians and deaf mutes both used lateral gestures of their hands to represent snow falling. *Snipe*, may tentatively be explained either by contrasting the movements SN- (backward) and -IP (forward and upward) as symbolizing the "angular flight" of the bird, or alternatively by referring the whole gesture to the long, thin bill, coming to a point, which is also characteristic of the snipe;

compare also *snout* and *snook*, where the idea of a projection is evident, though in these two words the projection idea is independently given by the lip projections of OU and OO, respectively. In *snide*, counterfeit, the SN- seems to be analogous to that in *sneak*, *snake*, etc., and to symbolize a furtive movement. As to the -IDE portion of the gesture, compare *glide* and *hide*—where the -ID gesture represents a continued (actually forward and upward) motion. *Snood* now seems not so difficult as it did. SN- is the beginning of a tongue motion along the palate; it also, in virtue of its initial S, represents something thin. It might well therefore represent the motion of something thin that is drawn round the Scottish maiden's head. -OOD represents an inclosing or circular action or object—as it obviously does in the word *hood*, or less obviously in *food* (that which is enclosed in the mouth), *good*, which probably also figuratively means "a mouthful", and *cud* (if pronounced *cood*—as it should be). *Snood*, therefore, is a not inapposite word for a fillet worn *round* the head.

The last of the SN- words to be examined is *snook*—meaning the gesture of contempt of placing the thumb to the nose and extending the fingers in the direction of the person to be insulted. The SN- here is obviously related to that of *snout*, *sneeze*, *snuff*, *snore*, and *snort*, where the drawing-in gesture was seen to have reference to the human *nose*. -OO- is an obvious projecting or pointing gesture (many native races in different parts of the world point with their lips) but what the terminal tongue-to-throat grip, -K, means is not so clear. The -K

seems merely to end the gesture, as it did in the alternative words *clack* and *clap*, *whisk* and *wisp*, which we lately considered, but it may well refer to touching oneself (i.e., the tip of one's nose) with the thumb, while the other fingers are extended, as in the gesture of OO. The terminal -K, indicating oneself, is found in the old English IC (German *ich*) meaning I. In *snook*, the fish—especially the sea pike, from Dutch SNOCK—SN- may refer to the nose of the fish, -OOK is here an elongated and tailing-off gesture.

We can now return to the word *snip*, which provoked the digression on SN-, and venture an explanation of its gestural meaning. SN- is an inward (or upward) motion; it is here associated with -I-, meaning that which is small or thin. When SN- is coupled with the small cutting-off gesture, -IP, we get, quite naturally, the idea of a small cutting or nicking action—a miniature edition, in fact, of *snap*.

On reviewing the words in SN-, it will be found that they all refer either to drawing in or up—e.g., *sniff*, *snuff*, *snug*, *snail*, *snake*, *sneer*, *sneeze*, *snare*, *snort*, *snigger*, *sniffle*, or to projecting (since that which is drawn in or up is made to project in that direction) as in *snub*, *snout*, *snipe*, and *snag* (jagged point). *Snick*—to cut a small notch or incision—is the result of a small backward U-shaped gesture of the tongue.

It has long been known that there was a relationship between SN- and the human nose—but there was no satisfactory explanation of the fact. Our study of the tongue gesture which produces the sound of SN-, makes

the relationship clear; indeed we find that of 34 short English words in SN-, 29—i.e., 85 per cent—are clearly gestural, and the remaining 5 words—viz., *snide* (bogus), *snipe*, *snob*, *snook* (fish), and *snub*—are probably also gestural.

The next in the list of words ending in -IP is *pip*. This is easy! *Pip* is a little thing similarly closed or cut off or ended at the beginning and at the end, i.e., fore and aft—whether we refer to the seeds of fruit, or to the pips of playing cards. *Pip* (to chirp like a bird) is of different origin altogether, being an attempt to imitate the *sound* of the birds' song. Such imitative words are comparatively rare; the majority of the words described as "imitative" are really gestural.

Quip: (possibly from Latin QUIPPE, forsooth) is quite apposite gesturally to its meaning, viz., sarcastic remark. Its sound may be written KU-IP, where KU- is an obvious pointing or shooting-out gesture. (Compare *cue*, *cuff* (to strike), *cut*, and *cuttle* (fish) in English; K'OU, to strike, in Chinese (Mandarin), or KU, a ball, KUO, to pass, go through, and KUA, to blow.)

It may be well to point out here that in considering such English words as *cuff*, *cut*, etc., we must remember that their present pronunciation, in Standard Southern English, is degenerate, and quite foreign to their real meaning. They were pronounced *cooff* and *coot*, etc.—as they still are in Lancashire and other parts of Northern England—and it is only when so pronounced that their true gestural meaning becomes apparent. Thus *cup* (pronounced *coop*) is a hollow, rounded object,

whereas K-AH-P (as in Southern English) has no hollow or rounded gesture in its make-up. *Gun* (pronounced *goon*) is a long tube held firmly or supported in the middle—G-AH-N means nothing of the sort! The old dialect pronunciation in these cases is altogether to be preferred, and should eventually be restored as King's English.

But to return to our study of *quip:* the KU- element means to point at, or shoot out; the final -IP is a little closure—a "pinch", shot out at the person towards whom the *quip* is aimed! A very neat symbolism, in fact.

Rip: shows the bending back action, R, together with the gripping action in front -IP; the tongue moves forward (to indicate the ripping motion), while the lips follow on, and hold the ripped portion.

Scrip: a wallet, results from the rather elaborate tongue gesture S-K-R, together with the terminal -IP, which here means small enclosure. The S-K-R- represents a high forward tongue posture (S), followed by a low grip at the back of the throat (K), and a curved-back tongue tip (R), which then moves forward to the I-posture near the original S-position. The whole gestural series forms a closed loop, as it also does in *script*, *scribe*, and *scroll*. *Scrip*, therefore, is a loop-shaped small enclosed object—a wallet.

Drip: (a little drop) has the surrounding tongue gesture DR-, combined with the small cutting-off gesture -IP. It therefore means literally a *little* surrounded mass cut off—e.g., the separated globules of water which drip.

Grip: shows the back grip, G, combined with the re-curved tongue posture R-, symbolizing "surrounded", but indicated as small and enclosed, namely by the terminal -IP. Altering the vowel to the large-mouthed OU or Ō, we get *group* and *grope*—which are obviously much *larger* ideas; in *group* the "surrounding" is, so to speak, static and merely defines the group; in *grope* the surrounding is an active movement of exploration. Lastly, as an example of an intermediate vowel gesture, we get GRAP-, as in *grapple*, together with the symbolism of a larger *grip*.

Trip: is identical in tongue and lip gesture with *drip*, but the gesture in this case is considered as a motion —not as an indication of form. The TR- then represents an overturning; the -IP indicates the smallness and sudden termination of the movement.

Strip: has the long drawn out, fore and aft, tongue gesture STR-, which appears in such words as *straight*, *strake* (continuous line of planking), *strand*, *strap*, *straw*, *streak*, *stream*, *street*, *stretch*, *stride*, *string*, *strop*, and *strut*, and which almost universally (in English) means something which reaches fore and aft, or (figuratively) from here to there. The tongue tip starts from the high, forward position (S), then draws back to make a passing contact with the palate (T), and finally recedes to the re-curved position (R). Gesturally speaking the tongue movement is analogous to a fore and aft movement of the hand. In the case of *strip*, the fore and aft movement STR- is combined with the small grip in front, -IP, to represent the stripping action.

Sip : the word speaks for itself.

Tip : here the initial T- seems to be simply indicative, as if to mean "*the* IP", though TI- may possibly mean high, and -P mean closed, finished, or ended.

Looking back on the series of thirty-two words ending in -IP, we are forced to the conclusion that they are *all* made to a definite plan—namely, that of pantomimic mouth gesture. It is true that in one or two cases some part of the symbolism was not obvious, but there were *no* exceptions ; the correlation between mouth gesture and meaning is of the order of 100 per cent. It is quite inconceivable that such a result would be obtained by chance.

Chapter VI

M, N, AND NG—SURVIVAL VALUE OF WORDS—CONTRASTING GESTURES

Let us now look at the symbolism of the continuing consonant gestures, M, N, and NG, in which the lips or tongue form an enduring closure, while the air, which energizes the resulting resonating cavities, passes out through the nasal cavity and nostrils. As before, we will begin with the lips and work backwards.

We have already seen that M is the result of a closure of the lips, during which the air from the lungs is allowed to pass through the nasal cavity—namely, by the opening of the valve, known as the soft palate, by which the back of the nasal cavity communicates with the upper part of the throat. We inferred that—as compared with B and P, which are due to similar lip closures, but without nasal action—M should symbolize a *continued* state of closure. We also saw that N was due to a comparable action of the tongue closing against the palate, so that, whereas M might mean continued closure in front, N, by contrast, might symbolize continued closure in the middle.

If the English monosyllabic words ending in M and N are studied, it will be found that these expectations prove well founded. There are 93 monosyllabic words

ending in -M in the dictionary, of which 74—i.e., 79 per cent—are gestural, 16 are doubtful, but quite possibly gestural, and only 3 show no evidence of gestural origin. Thus, *dam* is an obvious shutting off in front of the water which is to be held back. The corresponding word, *dab* (a lump) bears the meaning of being compressed together—as by the lip closure —but the -B in *dab* suggests a less enduring form of closure than the -M in *dam*.

In *cream*, *foam*, *skim*, *film*, and *scum*, the lip enclosure symbolizes the external film which closes over or covers the main body of the liquid in each case.

In *dream*, the continuing closure is figurative, as it is also in *dim*, and possibly in *whim*; also in *prim*, *gloom*, *doom*, *glum*, *grim*, and *form*.

In *dram* and *drachm*, *beam*, *boom*, *ream*, *stem*, *claim*, *trim*, *loom*, *room*, *farm*, *swarm*, *term*, and *plum*, the symbolism is of something enclosed, or cut off at the end; so also in *cram*, *team*, *jam*, and *slam*. *Slam*, as compared with *slap*, offers a good example of the enduring condition of -M, as compared with the momentary contact of -P.

In *sham* and *flam*, there seems to be a contrast drawn between the thin and fleeting symbolism of SH- and FL- respectively, and the enduring and massive symbolism of -AM; the combination of the two opposed qualities then symbolizes the idea of pretence which both words imply. The symbolism suggested may be compared with that of the deaf mute gesture for *perhaps*—i.e., good-bad.

In *slim*, the SLI- has the slight, back-sliding, slippery symbolism which we have already studied; the terminal -M may indicate compressed shape. The same gesture —substituting P for M—gives *slip*, which is obviously a momentary, not a continuing state.

In *hem*, *rim* (cf. *rib* and *rip*), *brim*, and *seam*—possibly also in *gum* (of the teeth), *crumb* (of bread), and *thrum* (the ends of weavers' threads which remain on the loom when the web has been cut off)—the M again represents the surrounded or enclosed condition.

In *bloom*, *plume*, *broom*, *palm*, and *elm*, there is the symbolism of an expanded mass—of petals, twigs, leaves, etc.—held or grouped or bunched together on their stem, as if surrounded. In *plum*, the rounded enclosed mass, -UM is of course the fruit itself, the upward tongue gesture -L- (which was originally an R), rising out of the lip closure P-, may symbolize the uprising tree—as it does in *plant* and *plane* (tree) and in *branch*, ARBOR- (Latin *tree*), and *arum* (lily). The uprising symbolism of PL- is seen also in Latin PLENUS, full, and in the English word *plim*, to swell or fill out, and *plump*, which contrasts neatly with *slim*.

Turning now to N, we find such words as *clan*, *plan*, *span*, *van*, *den*, *chain*, *bin*, *barn*, *earn*, *gain*, *reign*, *main*, *brain*, *grain*, *kin*, *learn*, *urn*, *churn*, *tun*, *own*, *gown*, *town*, *train*, *rein*, *inn*, where the symbolism of being held together or enclosed is evident. In *corn* and *grain* (Aryan GRNÓM), the C-R, or G-R, may represent the gathering together—or possibly also the grinding gesture, GR-, while the N-M is the shutting-off gesture, possibly

indicating the enclosure, or separation for storage, of that which has been collected.

In *screen*, we see the closure in the middle—i.e., between the extreme forward position of the tongue (S) and the extreme backward position (K), i.e. between the object and the observer; so also in *skein*, *yarn*, *rein*, *gin* (snare) there is the idea of a holding in the middle, which endures.

In *shin*, we have the surface (SH-) elevated (-I-) in the middle (-N) between foot and knee.

The "central" idea of N appears in *noon*, *sun*, *thorn horn*, *pain*, *fin*, *loin*, *groin*, and *spin*.

The symbolism of N is not so clearly marked as that of M- thus, out of 108 short words ending in -N, less than sixty at present show recognizable symbolism.

In many words, such as *thin*, *wan*, *sheen*, *lean*, *keen*, *brown*, *green*, *yon* (at a distance), *pun*, *down*, it may be that the tongue gesture of -N is only "indicative" and means "sort of condition" just as in the case of the similar tongue gesture of T, which appears to mean "sort of thing". It would, in fact, be quite consistent with the human instinct for symbolism that the momentary gesture of T should mean "thing" and that the similar but enduring gesture of N should mean some "enduring quality" of the thing referred to.

The continued closure at the back of the mouth—which produces the sound NG—is of comparatively infrequent occurrence in English—less than 30 monosyllabic words in -NG having been noted. But of these the great majority bear meanings consistent with the continuing

tongue-to-throat closure which produces the NG sound.

Thus, *bang* may be compared with *slam*, which has already been referred to; *fang* is that which seizes; *gang*, originally merely to walk, has become more symbolic in meaning, and now means to act *together*; *hang* is a forceful continued grip, as compared with *hack*, just as *clang* expresses a continuing sound as compared with *clack*. *Pang* is gesturally a sudden enduring *grip*, just as *pack* is a pushing together. *Tang* is the pointed back end of a chisel which is permanently gripped by the wooden handle, as compared with *tag*, a projection, which is *not* permanently gripped. *Cling* is an enduring grip, *click* is the result of a momentary one. *Fling* and *sling* suggest movement (FL or SL) high up (I) followed by, or combined with a terminal retraction or grip (NG) of the hand which flings or slings; in *fling*, to rush or go angrily, the -NG may denote tensity.

Ring is compounded of a recurved tongue gesture (R), and an upward and backward tongue movement (ING) to complete the circle, as compared with *rick* (or *wrick*) to bend—but not permanently.

Sting has the indrawn tongue tip gesture (ST) followed by the upward and backward tongue thrust (ING)—the whole symbolizing an inward stab with more than momentary results. The verb to *stick* has the same tongue gesture, but the stab is treated as less enduring than a sting.

Thong, like *tongue*, starts with a tongue tip contact

in the front of the mouth (TH or T) and ends with a grip low down at the back of the mouth (-ONG); in each case the whole extent—of the tongue or the thong—is indicated from front to back. *Long* is the product of a very similar gesture, substituting a lighter touch of the tongue tip against the front of the palate; the same gesture without the enduring terminal grip gives the words *lock* and *log*. *Strong* has already been referred to in connection with STR-, its terminal grip is quite consistent with the symbolical hand gesture from which the word must have been derived—namely, hand and arm outstretched, the arm then forcibly bent and the hand clinched as it approached the shoulder. The terminal -NG represents the final clinch.

Out of twenty-eight words in -NG studied, twenty are apposite in meaning to the originating gesture of -NG.

Survival Value of Words of Non-gestural Origin

A serious objection to the Gesture Theory of human speech—which will be present to the mind of every student of language—is that we often *know* how a word has arisen, and that, in such a case, mouth gesture appears to have nothing to do with its origin. It may therefore be argued that if we knew the history of every word, we should be able to eliminate gesture altogether as an explanation of verbal origin.

The answer to this objection is that mouth gesture is always *unconscious*, and that though a word may have come into use by some other means than instinctive

gesture, its original selection and its survival value are largely determined (though unconsciously) by whether the gestures of articulation which produce it are pantomimically appropriate or not.

One or two examples will make this point clearer. Many English words are derived from proper names: *Wellingtons*, as a form of boot (from the Duke who wore them); a *sandwich* (said to have been named after an Earl of that name, who ate "slices of bread and toast" while gaming for 24 hours); *tweed* (associated with the river); *kitcat* (a portrait of less than half-length, but including the hands); and the verb to *boycott*.

Other words, like *slump* and *ding-dong*—have suddenly acquired a quite different meaning from that which they formerly bore.

May it not be the fact that the popularity (so to speak) of the use of an existing word—whether a proper name or otherwise—for denoting a new meaning does depend largely on whether the word happens *also* to be gesturally appropriate to its meaning? Those who use the word will, of course, not be *aware* that it is gesturally appropriate, since mouth gesture is (as we have said) an unconscious action; they will merely feel instinctively that the word is a good word for its purposes—or the reverse. Our mental attitude in such matters is summed up in the well-known lines:—

I do not love thee, Dr. Fell—
The reason why, I cannot tell.
But this I know, and know full well
I do not love thee, Dr. Fell.

It is certainly remarkable that all of the seven words mentioned above—of which the first five were taken at random—are also gesturally appropriate to the ideas which they denote. Let us examine them.

Wellington is, gesturally speaking, of the type W-L-NG with a terminal -TON, such as we find in *button*, *glutton*, *sexton*, etc., indicating, apparently, enduring conditions. W is a lip extension, which is then drawn inwards to the tongue posture (E), and is followed by a momentary tongue-to-centre-of-palate contact (L), and by a final tongue grip against the back of the throat (NG). This is the same gesture as is found in the Aryan roots, W-L-K (or W-R-K) meaning to drag (also tear, rend), and the allied root, W-R-G, meaning to press, urge, shut in. Obviously, therefore, W-L-NG is quite *appropriate* to a long boot which is forcibly pulled on, and which presses and shuts in the leg and foot of the wearer!

Now let us take *sandwich*—meaning thin slices of bread (or the equivalent) pressed together. *Sand-* shows the forward bringing to a point or thin edge (S-), followed by the gesture of pressing and holding together (-AND). *-wich* shows the lip projection W, which is then withdrawn and followed by the squeezing gesture -ICH; (compare *flitch*, *wedge*), as in *clinch*, *pinch*, *catch*, *snatch*, and *clutch*. The same squeezing or bringing together gesture is seen in *cheese*, *chew*, and probably in *chill*, *chine* (deep, narrow ravine), *chink*, *chip*, *chit*, *choke*, and *chum*. *Sandwich*, therefore, though not so strikingly gestural as *Wellington*, is still not

inappropriate to its new meaning of thin layers pressed together.

Tweed is much more evident. TW- is a vigorous tongue release and outward lip gesture—as in our word *to, towards,* (German *zu*)—the lips are then swiftly withdrawn to the EE posture so that the TWEE- represents a to and fro movement; this is followed by an upward tongue movement EE-D, *at right angles* to the previous one. The gesture is closely similar to that of *twill* (Old English TWILI, meaning two-threaded) and is entirely appropriate to indicating the warp and woof of a fabric.

Kit-Cat—meaning a portrait of less than half length—is derived, as is well-known, from the name of Kit Catling, the keeper of the Piehouse where the Kit-Cat Club used to meet, in the days of James II, and on whose walls portraits of Kit-Cat size were hung. Gesturally speaking, *Kit-Cat*, or *Kit-Kat*, is a contrasting vowel word, like *see-saw*, *ding-dong*, etc., the tongue posture being high (I) in the one half of the word, and low (A) in the other. The consonant gestures, K-T, K-T, are those of cutting-off, as in our word *cut*; cf. Semitic root, K̂-R, to cut [1]. Sumerian KUD and KID split, Melanesian KUT, Polynesian KOTI, archaic Chinese K'ÂN,[2] cut, Canton Dialect KAN, chop, cut down, compress and KAT, cut. *Kit-Kat* therefore is *quite* appropriate to that which is cut off, above and below—as a full length picture must be to bring it to Kit-Cat size!

[1] Herman Möller, *Vergleichendes indogermanisch-semitisches Wörterbuch*, Göttingen, 1911, p. 119.

[2] B. Karlgren, *Analytical Dictionary of Chinese*, p. 109, No. 296.

Boycott—to punish or coerce by systematic refusal of social or commercial relations—is, of course, actually derived from the name of the Irish landowner who was thus punished or coerced during the land agitation in 1880. The word has now become universal. What is the hidden virtue which has made it so acceptable as meaning a process of coercing by resistance or pressure in *every* direction? Gesturally the word is built up of three closures, B-K-T, i.e., front, back, and centre of the mouth; the transition from B to K is made via the rising tongue AW to EE. If we examine some other languages we find many examples of the same gestures with comparable meanings—bearing in mind that, in B-K-T, B may be replaced by P, or even by M, and that K may be replaced by G or NG, and T by D or N, without altering the tongue or lip gestures in each case—except that the continuing gestures of M, N, and NG may have special meanings of continuing closures, etc. In Arawak (South America), A-BOKOTO—which is very like *boycott*—means to lay hold on, to hold; evidently the gestural idea is that of a fore-aft-and-middle grip. In Greek, M-G-N, as in MIGN-UMI, means to mix or join, or bring together—the same idea as that of the Arawak B-K-T gesture. Similarly, in Greek, P-G-N, as in PĒGNUMI, means to stick or fix in, to make firm or fast in—again the same idea of a general grip (or pressure), i.e., at front, back, and middle. *Bigot* is another English word of the same gestural family as *boycott*—its derivation is uncertain; it *may* relate (figuratively) to the mental attitude which the word denotes—viz., of holding tight to one's opinions

in all directions. *Picket* (P-K-T) from French PIQUET, pointed stake, has in its modern industrial sense come to mean something not unlike the gesturally analogous *boycott* (B-K-T).

It is not suggested that such words as have been given above constitute a proof of our hypothesis; for that purpose it would be necessary to tabulate *all* the words of similar gesture in each of the languages referred to, and see what proportion of them were appropriate in meaning. The subject has been dealt with, in some detail, rather as a challenge to those who are interested in the derivation of words to study these matters for themselves, and to realize that we have to explain not merely the parentage of our words, but by what hidden power they were preferred and have contrived to survive.

The other type of word to which reference may be made here is that in which the meaning has changed—as in the case of the words *slump* and *ding-dong*. *Slump*, in the seventeenth century, meant to be bogged—gesturally, to slip back (SL-) into a state of enduring enclosure, -UMP. It now means to slide or fall down into a heap. In its present (Southern English) pronunciation, the word may be spelt SLĀ-MP, in which form the gesture is *very* well suited to the new meaning, since SLĀ is entirely appropriate to sliding down to a low level -Ā, and -MP, as in *hump*, *bump*, *lump*, *rump*, *dump*, *chump*, *plump*, *clump*, *stump*, is the result of a "podgy" gesture, very appropriate to the idea of a heap. The new meaning of *slump* (especially in its modern Southern

English pronunciation) is therefore one which is likely to endure; it should not be pronounced *sloomp!*

Contrasting Gestures

And now a word as to *ding-dong* and the family to which it belongs. Originally *ding-dong* meant the alternating strokes of two bells—i.e., a high and a low (as in *see-saw*), or big and little; it is now used of a race in which first one and then another of two competitors is leading. But we have already seen that the tongue posture of I, besides meaning that which is high or little, may also mean that which is forward; I-Ŏ therefore may appropriately symbolize forward-backward. The word *ding-dong*, in its modern sense, was (it is believed) originally used in a newspaper article describing a horse-race—the word was evidently felt to be appropriate, and it has therefore been used by others, and eventually accepted in our language as, in effect, a new word. The real reason why it was thus accepted is (as we have suggested) that it was also gesturally appropriate to its *new* meaning. *Ding-dong* belongs to a class of vowel-contrast words which are common in English, and which may be worth considering further.

See-saw: this, of course, means high-low, and the projecting tongue tip of s- indicates coming to a point, so that the whole gesture indicates coming to a point high and low, alternately. The alternative word *titter-totter* (abbreviated in the U.S.A. to *teeter*) [1] depends on the same kind of vowel symbolism.

[1] *The Times*, 13.6.33.

Criss-cross is said by the *O.E.D.* to be partly from Christ's cross. Here the vowel contrast is very similar to that of *ding-dong*, but is used more accurately, since ĭ-ŏ (as in *criss-cross*) may quite naturally symbolize sloping upwards and forward, sloping downward and backward, somewhat as in the symbol X, while CR (KR) is an upward bending gesture.

Ping-pong is described by the *O.E.D.* as imitating the sound of the bat, but it is much more applicable to the forward and backward flight of the ball emphasized by the sudden release of the lips (and breath) of the initial P.

Another common type of vowel contrast is that from I, as in *ding* or *zig*, to the vowel which we write as A, as in *hat*; for example, *zig-zag*, *wiggle-waggle*, *chit-chat*, *flip-flap*, *flim-flam*, *dilly-dally*, and *knick-knack*. In *zig-zag* and *wiggle-waggle*, the contrast "high-low" has to do duty also for "from side to side", owing to the ineffectiveness of side to side tongue movements for producing change of resonance, as explained at pp. 63-4. In *chit-chat*, *flip-flap*, *flim-flam*, *dilly-dally*, and *knick-knack* the symbolism is rather that of "here and there", the two vowel postures being nearer together and less sharply contrasted than in the *see-saw* and *ping-pong* types.

There is another class of contrasting gesture words in which the vowel sound is kept constant and the consonant is changed—as for example in *hodge-podge*, *hocus-pocus*, *higgledy-piggledy*, *willy-nilly* and *namby-pamby*. In *hodge-podge*, *hocus-pocus*, and *higgledy-piggledy*, the contrast is that of a lip closure (P) as

against a throat constriction (H) and the symbolism is one of separation, scattering, or disorder; in *willy-nilly* (derived, of course, from "will he nill he") the contrast is between an open, receptive lip attitude (W) and a negative central enduring tongue closure (N); the symbolism is that of Accept-Reject. In *namby-pamby* (as in *nimini-pimini* and *finiky*) the contrast is between the closely adjoining closures N and P, or N and F, and the symbolism indicates exaggeratedly small change or action. In *teeny-weeny* the tongue and lip contrast of T and W is practically identical with that of N and P, and, coupled with the vowel symbolism of the small front cavity of EE—i.e., the small space between the front of the tongue and the lips—again indicates something exaggeratedly small.

Chapter VII

EVIDENCE—CONSEQUENCES—SPELLING AND PRONUNCIATION

The exposition which we have just made of English gesture words represents but a very small portion of the evidence which has been collected on the subject during the last four or five years. Over fifty different groups of English words—each group consisting of words having the same initial or terminal mouth gesture—have been examined in detail; several of these groups contained from 50 to 100 words. In almost every case the proportion of gestural words was found to be between 70 and 90 per cent—in several groups the proportion was more nearly 100 per cent; only in one or two was it found to be below 50 per cent—the average must be about 80 per cent.

Some thousands of words have also been studied in other language groups—in particular, archaic Chinese —Sumerian—Bantu—Polynesian—Arawak—and the Semitic languages. In every case, the same type of symbolism has been found. Thus, the root word, AL made by lifting the tongue tip from a low posture (A) to touch the palate (L)—means "up" in Aryan, Semitic, Melanesian, Polynesian, and Hoka, and has analogous meanings in Sumerian, Arawak, and Bantu.

Thus, in Sumerian, IL is lift up, ILA is high, AL is to protect (a protective hand-raising gesture); in Arawak (South America) A-LI is light (that which is up), ALASE is fruit, ALAITI is day (compare our word, light), and HOLOLO, meaning gesturally "big-up-big-up-big", is mountain! Conversely, the tongue-lowering gesture LA means to drop or be low, as, for example, in Semitic root H-L-A to be weak, ill, Sumerian LAL equal in weight (i.e., up, down, up), archaic Chinese LÂP, pull down (note the terminal grip P), Melanesian and Polynesian PALA, flat (i.e., down in front, PA, and down in the middle, LA) and Bantu LUALA and LUA, to be ill (i.e., to be stretched out, LU-, flat, -A).

We have mentioned the word "broadcasting", and it may be of interest to note the mouth gestures by which the operation of sowing grain is represented in some of the language groups to which we have just referred. The Aryan root is SA—the tongue makes a small grip high and forward and then flings itself down to the flat posture of A. In Sumerian, corn is SE; SA is to hit, or to set forth (almost a broadcasting in the modern sense). In archaic Chinese, SA is to sow; in Melanesian, to plant is SAWPU; in Arawak, SÖ, SE, and ISI mean seed; in Bantu, ZAA is to give birth (i.e., to eject or drop)—the same tongue gesture as SA. The English words *sack* and *sag* are examples of the SA gesture, used, not to indicate movement, but shape—namely, something held up high or forward, and hanging down from its point of suspension, while the terminal K or G closure indicates that the thing held is closed at the bottom!

If any readers of this book want further evidence, let them examine for themselves *all* the short English words in FL-, of which the lip and tongue gesture symbolizes movement—generally up or inward; or CR- (KR-), which symbolizes surrounding, containing, gripping, pinching, or bending; or SL-, which means sliding back or down; or -UMP which means projecting or inflated or round; or -M or -MB, which means enclosed; or -NG which means held or gripped at the back or to oneself; or SP, which means brought to a point or jet; or SH- which means a high thin surface or layer; or ST- which means drawn up, hold up or contract; or STR-, which means extending from here to there. They will hardly avoid the conclusion that 80 per cent or more of the words have a meaning which is related to the originating gestures of their initial or terminal elements (as the case may be) and further, that the other elements of the words are in most cases gestural also. Let us therefore—for the time being—accept pantomimic mouth gesture as a fact, and admit that even in modern English the great majority of our simple words are unconsciously built up on that principle.

Some Consequences

We are now in a position to study some of the consequences of our discovery. The first is, surely, that a language which depends systematically on pantomimic mouth gestures must be very much easier to understand than one in which the original descriptive gestures have been distorted or destroyed by mispronunciation and

by long-continued carelessness in articulation. In English, as we have seen, practically *every* word that begins with SP- means something which comes to a point or jet, or to small dimensions; similarly, nearly all the words that *end* in -SP (such as *asp*, *wasp*, *wisp*, *cusp*) also mean something that ends in a point, or a coming-together, as in *clasp* and *grasp*. Nearly every word that begins in STR- imports the idea of extending fore and aft, and so on. If this principle were consistently followed, we could at once form *some* idea of the meaning of a word that we did not know, by simply realizing the mouth gesture which produced it—even though we should still have to guess, from the context, *which* of the alternative meanings of the mouth gestures was intended.

We should also have a solid basis of fact on which to build new words, or even to form a synthetic universal language—if such a language is needed.

The next point which emerges is that, in many instances, the older English dialects still retain the true gestural form of words which have been distorted and made gesturally meaningless in modern standard English pronunciation. The Wessex R—the Lancashire U—even the Cockney pronunciation "*hile*" (hā-il) for *hail*, "*mile*" (mā-il) for *mail*, "*sile*" (sā-il) for *sail*, "*tile*" (tā-il) for *tail*, are purer and more expressive forms than the present "educated" pronunciation of these words. In other words, the diphthong *ai* ought to be pronounced *as* a diphthong.

The failure, in Southern educated English, to sound

the R in such words as *fare*, *snare*, *acre*, *bore*, *core*, *store*, is a serious loss to the language. It produces such false homophones as *maw* amd *more*, *paw* and *pour*, *saw* and *sore*, *raw* and *roar*, *law* and *lore*, *caw* and *core*, *flaw* and *floor*, etc. It is to be hoped that when once the nature of language is understood, the English-speaking races may take their own language in hand, and purify its pronunciation—so that it may become less ambiguous, more easy to understand, and more consistently gestural.

They might then also (as I have suggested in former works)[1] remove some of the visible blemishes of present-day English—as, for example, the quite irrational retention of the terminal -s in the third person singular of our verbs. We say: I go, you go, we go, they go, but: he *goes*. Yet we say: I can, you can, he can—not he *cans*! We say: I will, you will, he will—but we also say: he *wills*, where the same verb "will" is used by itself. There is no excuse for allowing such obvious "relics of barbarism" to mar our language, impair its purity, and add quite unnecessarily to its difficulties.

When language is realized as a system of descriptive mouth gesture, we shall be better able to understand the relationship between the purpose of rhyme and rhythm in poetry, and that of gesture and rhythm, or harmony and rhythm, in the sister arts of dancing and music. When we make a rhyme, we have momentarily brought our organs of articulation into the same posture

[1] *Human Speech*, p. 51; *Babel*, pp. 70–72.

as before; when we so time these repetitions of posture that they occur rhythmically, so that our gestures of articulation (as a whole) form a pattern in Time, we have performed a dance with our tongue and lips. Thus, rhythmical and rhymed speech (as in poetry) bears the same relation to ordinary speech (as in prose) that descriptive dancing bears to ordinary acting on the silent film. In poetry and dancing, the descriptive gestures have been formalized into a pattern. We are thus led to anticipate what is coming, and to take artistic delight in the pattern of the movements which carry the meaning, as well as in the actual meaning which those movements are designed to convey.

Spelling and Pronunciation

The gestural aspect of speech in general, and of English speech in particular, throws a new light on the vexed question of English spelling, and as to the need of a better way for representing the spoken word by alphabetical symbols. It goes without saying that our spelling *should* represent the spoken word, as it originally did, or tried to do, when men spelt as they pleased, and as it actually has been made to do in the reformed spelling of German and some other European languages to-day.

But, as we have seen, the present Standard English of Public School—Southern English type—is far from being a perfect model, or one which we should aim at retaining. The Pure English—at which the late Dr. Robert Bridges and his associates aimed—ought

obviously to represent the language at its best, and this, as we now see, must include gestural accuracy in articulation. The mouth gestures must represent the pantomimic sense of that which we set out to express; in other words, we must reconsider our pronunciation, and treat it not as a fashion of speech, but as a system of gesture. Where the modern gesture—as in our words *gun* and *cup*—no longer represents the sense of the word, we must be prepared to return to older and purer forms, so that our language may once more be truly expressive. For example, we must pronounce our WH as in Scotland, our R as in Wessex, our AI and AY as in East London.

The reader will have noticed that in many instances—as indeed in that of *gun*, *cup*, and *raise*—the spelling does indicate the meaning of the word, though the modern pronunciation does not. It appears, therefore, that while pronunciation is visibly at fault, it would be unwise to attempt to standardize our spelling. On the other hand, there are many words—such as *anchor* and *ache*—in which the present pronunciation is truly gestural, but the spelling has been distorted by pedants "to make it more difficult". In such cases there is everything to be said for a return to sanity. On the whole, the wisest course would be to give freedom to our spelling such as it enjoyed in Shakespearian times, and to encourage all who love the English language and wish it well to study its words and spell them as they ought to be pronounced—i.e., according to their gestural meaning. We should, therefore, I suggest, keep the R's which we no longer pronounce—as in *bar*, *bear*, *fear*, *year*, *jar*, *oar*, *war*,

air, *fir*, *for*, *door*, *poor*, *pour*, *sour*, and *spur*, and save them up for better times.

When the English-speaking races have learnt to realize the principles on which their language has been built up, and to appreciate that there *is* a right and a wrong way of pronouncing the words of English speech, then will be the moment to consider pronunciation and spelling on their merits. A large measure of standardization will be possible without much difficulty, for even now the spoken word can be easily broadcast over the whole globe, talking films are to be seen and heard in almost every village, and gramophones are in every house.

At present a certain measure of standardization is being attempted by the B.B.C., but unfortunately in a very unprincipled manner. The Advisory Committee —consisting mostly of distinguished men of letters— have apparently no guiding principles on which to act; they therefore are driven to recommend this or that usage from preference rather than from principle. Thus, it has been officially recommended that *often* should be pronounced *offen*—regardless of the fact that the word is derived from *oft*, or that when pronounced as *offen* it becomes very nearly a homophone to the word *orphan*, as pronounced in Southern English. Did they do this for the sake of preserving "the verbal confusion"—with which W. S. Gilbert made play—between *often* (pronounced *awfen*) meaning "frequently" and *orphan* (also pronounced *awfen*) meaning "one who has lost his parents"? The B.B.C.

Advisory Committee have recommended that the words *scena* and *scenario*—of common origin—should be differently pronounced, the SC in *scenario* as S, and the SC in *scena* as SH ! Would it not be better to recommend that the two SC's should be pronounced alike, even though modern film producers do not do so *at present* ?

Another matter in which, it is suggested, principle rather than preference should be applied, is in the accentuation of English words. Accentuation, if arbitrarily applied, is a real blemish to the language ; it makes it so much more difficult to learn. If the correct accentuation is indicated by diacritical marks, the written or printed word becomes complicated and unsightly ; if the accentuation is not indicated, it becomes impossible for the reader to pronounce the word correctly unless its accentuation is already known. The obvious way out—if accentuation is to be retained—is to systematize it, so that, without having heard a particular word before, the reader may *know* on what syllable the accent should fall. In English, a large number of polysyllabic words are accentuated on the first syllable —e.g., *állegory*, *blácberry*, *chórister*, *dáffodil*, *éloquence*, etc. This, if systematized, would be an admirable plan ; the accentuation would then mark the beginning of each word in a sentence, and assist the listener in the necessary process of sorting out the flow of syllables into *words*. But here again the B.B.C. show a lack of principle, and in many instances where there is precedent for accentuating the first *or* some other syllable, they have selected the other ! For example ; finnáns, for finance ;

tattóo, centéenary, aspírant, constrúe, labóratory, salýne, for saline—but sáyline when used as an adjective. They also have recommended such departures of pronunciation from the spelling as triptick for triptych (where *triptitch* might well have been used) and jillyflower for gillyflower.

Haphazard directions—however much they may be justified by the usage of well-known speakers, past or present—make the written language more difficult to pronounce correctly, and more difficult to understand when spoken. Our aim should surely be to do the exact reverse, and to make English as easy to read and pronounce correctly as, say, German, or the other languages whose spelling has been systematized.

The argument put forward (by the B.B.C. Advisory Committee) in favour of labóratory rather than láboratory is that the word is then less liable to be confused with lávatory! The answer is that if láboratory were articulated *with reasonable precision*, and were *not* pronounced lábatory (as no doubt happens to it in the mouths of slipshod speakers) there would be no need to alter the accentuation.

Our national education ought, in fact, to encourage good articulation as part of our duty to our own admirable language.

The B.B.C. Committee's apparent preference for giving different pronunciations to the same word when it is used as a different "part of speech", e.g. as a substantive or an adjective, is especially reprehensible! It is one of the peculiar virtues of English that it has

thrown off a large proportion of its grammatical and syntactical fetters and is now on the highroad towards that full liberty of verbal use which is the glory of Chinese.

In English (as in Chinese) we can (as has been already pointed out) frequently, use the same word as several different " parts of speech ". This is admirable ! The word expresses the idea, and we use it as the context requires. The order of our words expresses the order of our thoughts.

It will be a linguistic tragedy if the B.B.C. Advisory Committee starts to forge fresh shackles for our language and to limit our freedom to use its words for the free expression of our thoughts.

This at least can be said, that the B.B.C. recommendations do draw attention to the differences of usage and pronunciation, and that if, in the future, they are guided by rational principles, they will become a potent influence for good in moulding the future development of English throughout the world. Broadcasting may also help greatly to promote an interest in good articulation as being a matter of real cultural value. Carelessness in articulation can ruin a language—as it has done to a tragic extent in China.

Chapter VIII

EXPERIMENTS IN ENGLISH—ORTHODOXY—CONCLUSION

We have spoken of the advantage of simplifying our language and making it easier to learn and use. In this connection, honourable mention should be made of a very gallant experiment in English which is being carried out by C. K. Ogden and his associates under the name of Basic English [1]—an experiment which has already gained for itself a considerable measure of success and support.

Basic English is important not only as the latest and most promising attempt to produce an international language, but because it is a pioneer experiment in the science of applied linguistics. In the past, the study of languages has been a purely academic affair. Here, perhaps for the first time in recent history, a set of theoretical conclusions have been focussed on a concrete social problem—the problem of international communication—with a practical proposal as the outcome.

In 1923, Mr Ogden, in collaboration with Mr. I. A.

[1] See *The ABC of Basic English*, C. K. Ogden, 3rd edition, Kegan Paul, 1935. About thirty books have been published in Basic English, of which the following are examples: *The Basic St. Mark*, Kegan Paul, 1935; *Carl and Anna*, Leonard Frank, Kegan Paul, 1930; *A Basic Astronomy*, S. L. Salzedo, Kegan Paul, 1934, and *Twentieth Century Houses*, Raymond McGrath, Faber and Faber, London, 1934.

Richards published *The Meaning of Meaning*[1], and presented to the world a new science of Symbolism with which to examine the elements of communication, linguistic psychology, and the meaning of symbols. They studied the meaning of the much-abused term "meaning", and discovered that it had as many as sixteen separate uses. They declared war on formal grammar, and developed certain canons of interpretation, definition, and communication which would assist in the reconstruction of grammar and lead to a study of the principles of notation. The nature of linguistic fictions was made clear, and an important distinction drawn between the "emotive" and "referential" functions of words.

Thus, we may use language to make statements *about* things, or to express our attitude *towards* them. Frequently, however, we express our attitude towards them in the form of statements *about* them. When such expressions of feeling are conveyed by adjectives which are clearly of an emotive character, as when we state our approval or disapproval with such words as *horrible*, *disappointing*, *pleasant*, and *nice*, we are probably not deceived. But when our adjectives appear to name "qualities" of the object, as for example when things are said to be *beautiful* or *good* or *noble* or when, again, an expression of attitude is contained in what seems to be the name of the object (e.g., *cad*, *hound*, *sin*,

[1] *The Meaning of Meaning*. C. K. Ogden and I. A. Richards. London: Kegan Paul, Trench, Trubner and Co., Ltd., 1927. 2nd edition, 1927. 3rd edition, 1930. New York: Harcourt Brace and Co., Inc.

masterpiece), we may have great difficulty in identifying our referents.

In the next year, Mr. Ogden followed up his work on fictions with an exhaustive study of the verb, which he perceived to be a peculiarly elaborate type of fictional construction. His analysis showed that two quite different sorts of word are commonly called verbs—the one being the name of a simple, physical operation (e.g. *put*, *take*) without a directional preposition, while the other type of verb is a complex of several parts of speech (e.g. *disembark*, *educate*, etc.).

It was seen that the complex verbs could in every case be replaced by an operator—such as *put*, *take*, etc. —in combination with some other part or parts of speech. The majority of these substitutes were formed by putting together an operator and a "directive" (preposition). To take some typical examples based on the operator *go*; we may say: go across = *traverse*; go up = *climb*; go in = *enter*; go with = *accompany*; go after = *follow*. Sometimes the substitute can only be completed by filling in the sentence, as in: get (a book) out = *publish*; get (a tooth) out = *extract*; get (a cork) out = *draw*; get (gold) out (of the earth) = *mine*. In the case of *disembark* (get off a ship) the whole of the sentence except the subject has been compressed or telescoped into the verb-form; and an even more complicated sentence is contained in the verb *decimate* which, when decoded, reads "put to death one (man) out of every ten".

Mr. Ogden recognized that he had built up a set of principles which might be used, in theory at least,

for a systematic reduction of vocabulary without loss of clearness in the simplified language. The bearing of this on the problem of an international language was immediately seen. *A priori* systems, synthetic constructions, rejuvenated Latin, etc., had all failed to secure the necessary support, but the psychological, structural, and grammatical aspects of simplification, in relation to a living tongue, had never before been adequately realized. English was taken as the obvious language for the experiments because of its analytic verb structure and universal diffusion.

For English, in addition to being the native language of Great Britain and North America, is used administratively throughout the British Empire. This means that it is the dominant language for nearly a quarter of the world's population, leaving a Babel of approximately 1499 different tongues for the other three-quarters. English is, moreover, the main foreign language taught in the schools of Japan, China, the Argentine, as well as being the first educational language of Germany and of Turkey.

Preliminary research led to the surprising discovery that sixteen "operators" and two auxiliaries could displace about 4,000 common verbs on the lines illustrated above. Further investigation of word-ranges and definition systems at different cultural and occupational levels of communication made it clear that the normal field of discourse, representing something like 20,000 words, could be covered theoretically with about 600 words, and in practice with about 800.

At such a level, naturally, one does not expect literary subtlety, which can be reached only by making language a major cultural study ; nor is it necessary to deal with the complex technicalities of the specialist, for whom, however, an international vocabulary, which can be operated with the help of the Basic system, is rapidly becoming available.

Finally, after considerable work on the details, a list of 850 words was printed on one page of *Psyche* in January 1929. This word-list—whose survival-value is enhanced by the inclusion of a very high proportion of fundamental words based on " mouth gesture "—is the vocabulary of Basic English, and can be operated by half a dozen simple rules.

The Basic vocabulary contains a very large proportion of simple non-fictional words. This makes it an admirable classifying and defining medium. Even at the highest levels of science it is possible, and frequently desirable, to go back to the simple pointing words which are the natural instruments of the young. These are the words least likely to create ambiguity, because they are based on the senses and on the first physical behaviour-reactions before we come to use those complex fictions which give us so much power and knowledge of a different sort.

Basic is a reduction and not a modification of normal English, but instead of following the obsolete pronouncements of the grammar books, it has observed and profited by current usage. Thus when talking Basic there is no hesitant choice to be made between *will* and

shall, because *will* is used on all occasions; the subjunctive mood, which sounds pedantic on 90 per cent of the occasions on which it is used, is similarly discarded.

Mr. Ogden and his collaborators have felt bound to retain in Basic certain minor irregularities of our present language—in cases where deviation would offend the ears of English-speaking peoples. The removal of these irregularities in the future must depend on the progress of the English language as a whole, and is no part of the programme of Basic itself. It is to be hoped that foreigners will be less tolerant of unnecessary noises than we are ourselves, and may give us a lead by refusing, for example, to hiss at the end of a verb when using it in the third person singular, or to retain an objective form for pronouns which has long been abandoned for nouns without causing any confusion. When the function of language is better understood there will be greater readiness to eliminate "irregularities" and to perfect the language for the sake of the added power and beauty which would result.

If people are at present shocked by such suggestions, it is only because they are ignorant of the process of change which is constantly at work and which has made the English of the twentieth century an entirely different language from the English spoken in Chaucer's, or even in Shakespeare's day.

Basic has the great merit of calling attention to contemporary developments and of reminding us that the future of English may well be with the Americans rather

than with our own countrymen. In addition to this, by forcing us out of the rut of commonplace expression and making us restate our ideas in simple words, it may possibly develop in us a greater linguistic consciousness, which will enable us to plan the future of our language and to direct the hitherto fortuitous tendencies by which it is moulded.

A New Experiment

The Basic English experiment suggests the mention of another "Experiment in English" which was put forward by the present writer in 1930,[1] but for which the experimental team has not yet been brought together. The idea was to collect a number of, preferably, young writers, all interested in the possibility of improving our language, and prepared to make trial of innovations—whether by return to older and more rational forms, now obsolete, or by the invention of new ones. The experiment was to be carried out in the same spirit as that which prompted Dr. Robert Bridges and the Oxford University Press to make trial of many innovations of spelling in the *Testament of Beauty*.

In this connection it may be recorded that Dr. Bridges was personally interested in the Gesture Theory of speech, and that while he was working on the *Testament of Beauty*, he said to the present writer: "I have put you in my Poem". The passage: "... Our speech, in its mere cries and calls hath less natural beauty and true significance than the bodily gestures which convey

[1] *Human Speech*, pp. 268–9.

our desires . . ."—which also appears at the beginning of this book—was evidently the one referred to by him.

But to return to our experiment. It was proposed that the group should, on paper at least, form a story-telling society, and open the proceedings with a short address from the Chair, explaining the purpose of the experiment. Then one of the company would tell a story—which must be a good one and short, but which must also bring in some of the inconveniences of our present English usage—such as the absence of any word to distinguish *he-here* from *he-there* (like HIC and ILLE in Latin) or the anomaly of the form of the third person singular in English verbs. After the story there would be a discussion, and attention would be drawn to the difficulties in question—they would be briefly examined, and new usages would be agreed upon. The second story, by some other member, would then incorporate the new usages, but would raise other problems, which would be tackled and solved in a similar way. Gradually the new usage would be built up—always on the basis of some definite principle rather than that of personal preference or authority—and its readers would be led, by degrees, to appreciate the logic and advantage of the various changes adopted.

To those who actually took part in the experiment, it could hardly fail to be stimulating and interesting. It would lead them to a much closer analysis of the structure of our language than the ordinary writer is apt to make, and if it succeeded in interesting the reading and listening public (for the stories, if sufficiently

good, might well be broadcast as well as printed) it might be the starting point for a great advance in "Pure English". The group would not all be required to be short-story writers; there would be need for students of English, Grammarians, Linguists, Poets, Foreigners (to indicate the difficulties of English as they appear to other nations), and a Man in the Street to represent the Public!

If amongst the readers of this book there are any who would like to take part in such an experiment, they are cordially invited to communicate with the author, through the present Publishers, with a view to definite action.

Orthodoxy

The present "orthodox" view of Human Speech in general, and of English in particular, is very different from that which has been put forward in this book. Thus, in September, 1933, Mr. A. Lloyd James, of the B.B.C. Advisory Committee, was reported as stating that speech must be conceived as a dynamic thing, in constant change, subject to fashion, and expressing social relations which are themselves constantly shifting. In this way, vowel sounds tended to change, as the A in *man* (which used to be broad as in *calm*, or as in the present Yorkshire dialect) had changed to the narrower A of the present B.B.C. Announcers; our speech progress was towards Cockney. According to this view, there *is* no correct pronunciation, and there can be no standard of English speech, other than a purely arbitrary standard based on the usage of this or that class or group of

English speakers. As against this view, the present book attempts to offer some material for a definite standard based on the meaning of our English words, and of the natural, unconscious mouth gestures by which those meanings are symbolically expressed. Thus, we *know* that the A in *calm* ought to be "broad"—because the symbolism of *calm* is expressed by the tongue being held low and flat in the mouth—like a surface of unruffled water.

It is not suggested that the time is yet ripe for setting up a new standard of English pronunciation based on the pantomimic meaning of mouth gesture; that will need much more detailed study than the subject has yet received, and a general understanding on the part of the English-speaking peoples of the real nature of speech. It would, however, be well if we set our faces against the "dynamic theory", and maintained—even against the B.B.C.—that speech ought not to be a matter of fashion. Speech is a matter of making gestures with our mouths; the principle on which these gestures are made have (it is hoped) been made clear in this book—it is "up to us" to make those gestures with care and finish, and to avoid slipshod methods of production as being definitely injurious to our language. We have seen how Chinese has suffered by many centuries of careless articulation, so that it has lost many of its significant gestures, and ruined its intelligibility by the development of countless homophones. These things will happen to English if we give no honour to articulation, and allow our language to slip down the path of least resistance.

We have also seen how English is made needlessly difficult to understand, because we have no system in our manner of accentuating our polysyllabic words. In these matters, we might be improving our language *all the time*, instead of accepting a "dynamic" theory which (as Chinese experience teaches) is apt to lead us from bad to worse!

It is in the hope of interesting those who love the English language to understand its inner meaning, and to join together in making it more perfect, that this little book has been written.